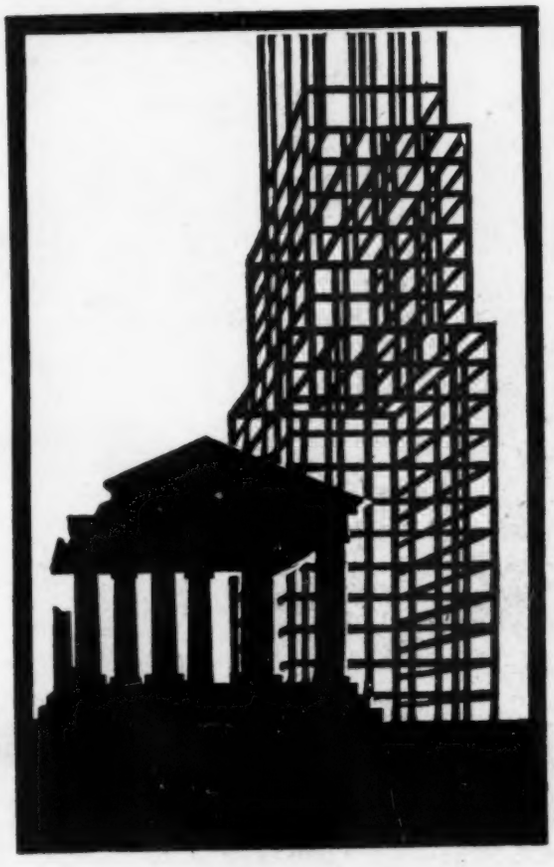
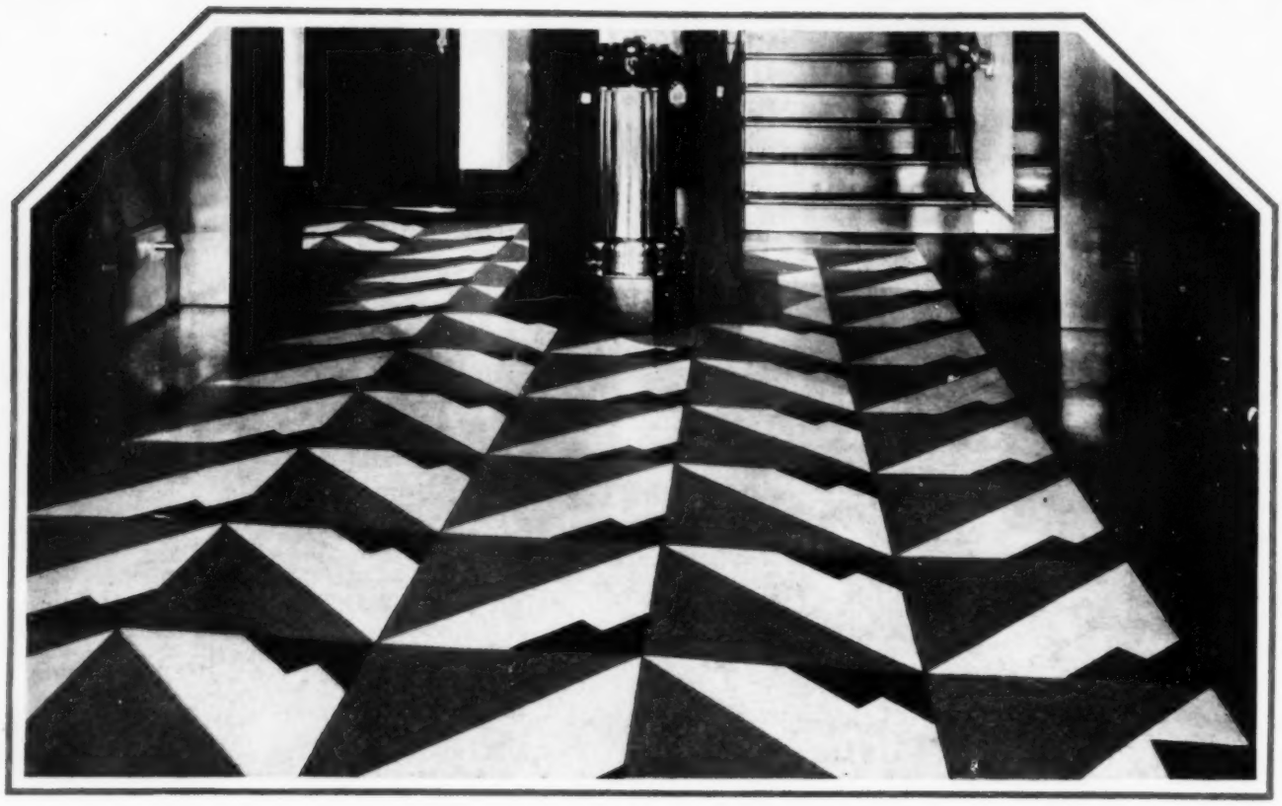
THE ARCHITECTURAL RECORD



AUGUST
1931



A true-color reproduction of the terrazzo floor in the lobby of the Cinderella Bldg., St. Paul. Artcraft Mosaic Co., St. Paul, used Atlas White portland cement for the terrazzo.

Terrazzo made with Atlas White insures colorful, durable floors

IN designing the colorful terrazzo floors now so much in vogue, marble chips of many shades and hues are used. To bring out and preserve the true color value of these chips, a pure white or lightly-tinted background is essential. Atlas White, a pure white portland cement, furnishes an ideal background for white, black or colored marble chips. It is used from coast to coast for fine terrazzo.

Name .....

Address .....

UNIVERSAL ATLAS CEMENT CO.
208 S. LaSalle St., Chicago
Without obligation, please send me further information on Atlas White terrazzo.
A. E. 8-31

59

CONCRETE FOR PERMANENCE

Universal Atlas Cement Co.

Subsidiary of United States Steel Corporation

ATLAS WHITE PORTLAND CEMENT

CHICAGO · NEW YORK · PITTSBURGH · MINNEAPOLIS · KANSAS CITY

THE ARCHITECTURAL RECORD

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Entered as second class matter May 22, 1902, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

The "Royal York," Toronto. Ross & MacDonald, Montreal, Architects; Sproatt & Rolph, Toronto, Associate Architects; Anglin-Norcross Ltd., General Contractors, Montreal, Toronto

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- ☐ "Science and Practice of Integral Waterproofing"

Any or all of these interesting pamphlets will be sent free on request written upon your business stationery.

The Royal York in Toronto is another example of the preference accorded to Truscon Waterproofing Paste for better buildings everywhere. As would naturally be expected for a building as fine as the Royal York, the utmost care was used in selecting all structural materials. The fact that Truscon Waterproofing Paste was chosen is significant. It shows the building profession generally recognizes that when certainty and permanence of waterproofing results are an important consideration, the preference belongs to Truscon. This is well illustrated by Truscon's outstanding record covering over 20 years and including finer buildings throughout the world.

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(INTEGRAL)

ARCHITECTS' ANNOUNCEMENTS AND CALENDAR

Louis Charles Hess and Associates, Inc., of 5231 Holman Street, Hammond, Ind., have opened a branch office at 1530 Halsted Street, Chicago Heights, Ill. Mr. H. Nilsson is in charge.

Walker and Angell, architects, are opening a branch office in the Custer Building, River Street, Aurora, Ill. They maintain the main office at 466 Main Street, Glen Ellyn, Ill.

Tucker and Burgess, architects, Norwalk, Conn., announce the dissolution of the firm. John J. Tucker opens an offce for the practice of architecture at 64 Wall Street, Norwalk. James Milford Burgess has an office for the practice of architecture at 9 Union Avenue, Norwalk.

Charles L. Wallace, formerly in the Will. Co. National Bank Building, Joliet, Ill., has moved to 409 Campbell, Joliet.

Thomas L. Gleason, architect, has offices on the first floor of his own building at 98 Chestnut Street, Albany, N. Y. Mr. Gleason specializes in school, club and fraternal buildings.

C. I. Botteron announces his new address as Indiana Harbor National Bank Building, East Chicago, Ind.

Henry and Murphy, architects, announce the removal of their offices to 247 East Exchange Street, Akron, Ohio.

Larsen and Larsen, general contractors, announce that they now occupy their new building at 629 Bryant Street, San Francisco.

William H. Brainerd Associates, architects, 89 Franklin Street, Boston, announce that they have admitted Howard D. Fiedler to partnership.

Morris H. Whitehouse and Associates announce the change in their firm name to Whitehouse, Stanton and Church, who will continue the practice of architecture with the same personnel of firm and staff as heretofore at the Railway Exchange Building, Portland, Oregon.

S. J. Spanier offers an architectural drafting service at 485 Madison Avenue, New York.

Messrs. Benedict J. Kaiser, Allan H. Neal and Alfred Damian Reid, who have long been associated with the late Carlton Strong in the practice of architecture, announce the formation of a firm for the purpose of carrying on Mr. Strong's work and for the general practice of architecture at 324 Fourth Avenue and Keystone Building, Pittsburgh, Pa.

The Los Angeles College of Architecture and Engineering announces a course on modern design in its program. The course will be directed by Richard J. Neutra, architect.

UNIVERSITY OF MICHIGAN

Jean Hebrard has been appointed professor of architectural design at the University of Michigan. He succeeds the late Prof. Albert J. Rousseau. Prof. Hebrard, for the past five years, has been teaching at the University of Pennsylvania. At one time he was professor of architectural design at Cornell University. He holds the diploma of the Ecole des Beaux Arts.

TWO NEW FLEXIBLE INSULATIONS

In response to the need for varied types of insulation to fulfill differing requirements, the Celotex Company is producing two new flexible insulations.

The first, Ozite Building Blanket, is all hair felt, chemically treated and stitched, not pasted, between layers of tough, heavy, waterproof duplex crepe paper specially reinforced with animal hair for durability and resistance to puncture. The method of stitching, rather than pasting, the blanket to the paper causes Ozite to fluff out when applied, thus increasing its specified thickness.

The second flexible insulation is C-X Lanite Insulating Quilt. It is also made with a patented combination of imported fiber and hair, felted together and stitched between tough, heavy, flexible duplex crepe paper with an asphalt content.

CALENDAR OF EVENTS

Until Aug. 2	German Building Exhibition, in connection with International Town Planning and Housing Exhibition, Berlin.
Until Aug. 8	Art Exhibition, Royal Academy, London (Burlington House).
Until Aug. 26	Second Annual American Fair, Atlantic City Auditorium.
October 1	Closing date for entries for Lincoln Arc Welding Prize competition. Address inquiries to the Lincoln Electric Company, Cleveland, Ohio.
October 15	Closing date for entries to 5th Annual Small House Competition. Address the House Beautiful, 8 Arlington Street, Boston.
November	Exposition of Indian Tribal Arts, Grand Central Art Galleries.
October-December	Art Exhibition, Royal Society of Painters in Water Colours, London (5a, Pall Mall East).
December 1	Closing date for entries in 1931 Better Homes in America Competition. Address Better Homes in America, 1653 Pennsylvania Ave., Washington, D. C.
1932	
Jan. 25-29	Second International Heating and Ventilating Exposition, Cleveland. In conjunction with annual meeting of American Society of Heating and Ventilating Engineers.
1933	"A Century of Progress," International Exposition at Chicago.

Byron Co.

REMODELED HOUSE AT HAMPTON BAY, LONG ISLAND
WILLIAM MUSCHENHEIM, ARCHITECT

Mott Studios

EL ENCANTO APARTMENTS, PALM SPRINGS, CALIF.
MARSHALL P. WILKINSON, ARCHITECT

Tubbs and Knell

FIRST PRESBYTERIAN CHURCH, HACKENSACK, N. J.
E. P. MELLON AND W. L. SMITH, ARCHITECTS

SEPTEMBER ISSUE

HOUSING DEVELOPMENTS — An Opportunity for Architects.

This issue begins a series of studies of the housing problem. Work already begun by architects in various parts of the country will be illustrated. Trends toward multi-family housing groups and community projects, as well as the detached types, will be discussed. Technical articles will deal with possible economies through good planning and efficient methods of construction.

A PORTFOLIO of houses is included. The illustrations feature two Mexican villas by Luis Barragan, architect, and work by William Muschenheim, R. M. Schindler and other architects.

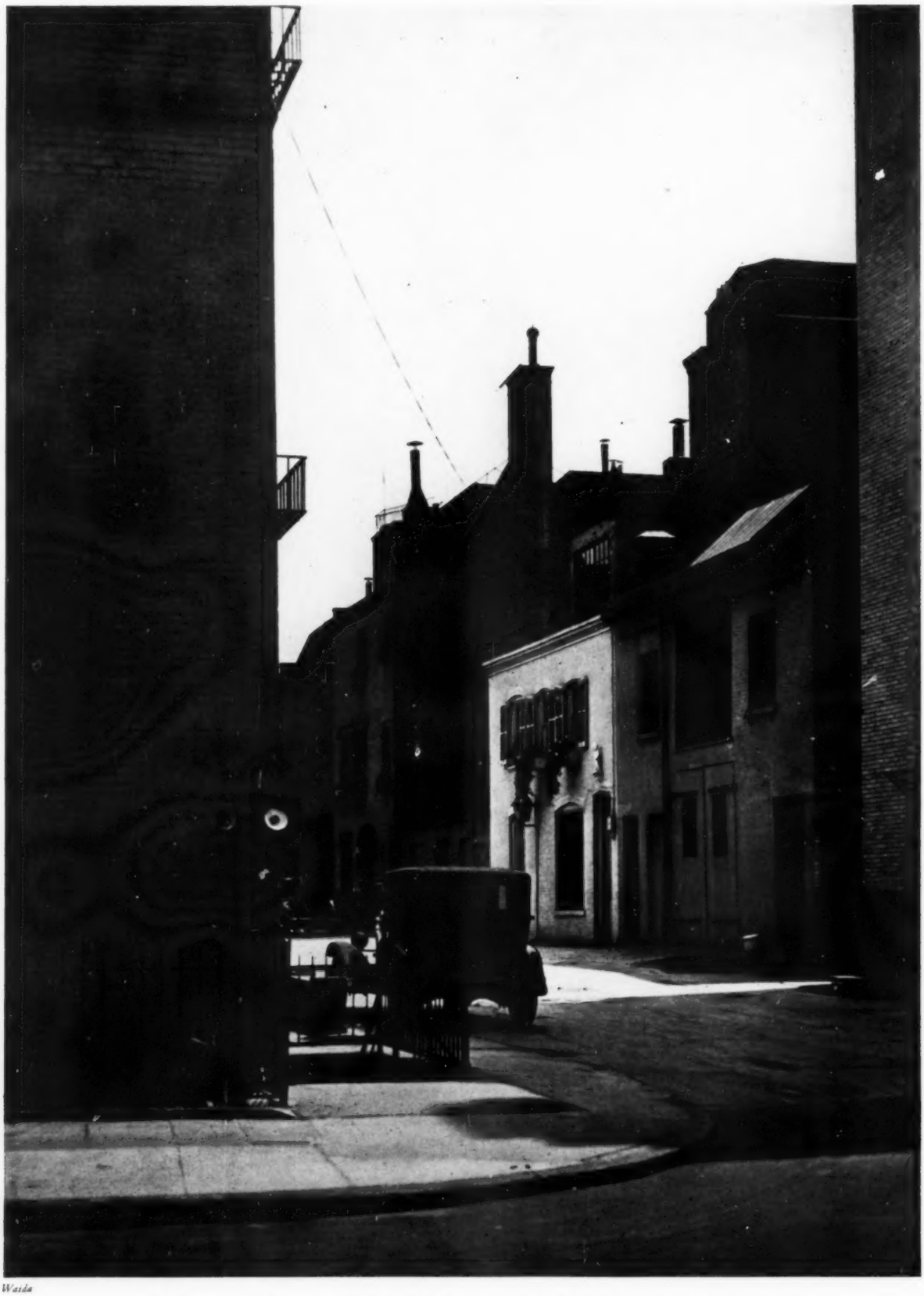
Another PORTFOLIO presents a series of churches. Three churches—in Milwaukee, Chicago and Montclair, N. J.—are designed by Charles Draper Faulkner, architect. E. P. Mellon and W. L. Smith are the architects of another church at Hackensack, N. J.

A MODEL SHOPPING VILLAGE, now being developed at Highland Park, a suburb of Dallas, Texas, by Fooshee and Cheek, architects, is illustrated with plans. The shops, restaurants, offices, display rooms, fire and police stations, filling stations are designed to meet practical requirements.

NEW FIELDS FOR ARCHITECTS, offering suggestions for new enterprises, is continued in this issue. Ways and means employed by architects to obtain commissions are discussed.

ARCH ROOF CONSTRUCTION OF REINFORCED CONCRETE, an article by Arthur J. Barzaghi, engineer, gives important data for spanning large floor areas without the encumbrance of supporting columns.

TECHNICAL NEWS AND RESEARCH —AN EXPERIMENTAL STUDY OF BRICK MASONRY WITH SPECIAL REFERENCE TO WATERTIGHT CONSTRUCTION is an important contribution by Dr. F. O. Anderegg, a consulting specialist on building materials. His investigations were carried out at the Mellon Institute of Industrial Research. Many excellent recommendations for mortar mixes and the handling of brick to insure watertightness are made.



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OLD STABLES BECOME ARTISTS' STUDIOS IN MACDOUGAL ALLEY, NEW YORK

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE
OF ARCHITECTURE

VOLUME 70 AUGUST · 1931 NUMBER 2

AN OFFICE BUILDING AND BANK IN PHILADELPHIA

PAUL P. CRET, ARCHITECT

The Hardt Building, occupied on the lower stories by the Columbia-Tenth branch of the Integrity Trust Company and on the upper floors by office suites, is located at Broad Street and Columbia Avenue. This is a very busy corner, with a subway entrance and heavy traffic on both streets. One block away is Temple University.

The structure was designed first as a 10-story office building with stores on the ground floor. (Gross area for each floor, 6,485 sq. ft.; net area, 5,300 sq. ft.) The first two stories were to be faced with Indiana limestone; the walls above with tapestry brick; and the interior walls with plaster, wood base and wire mold. The building contract was $332,400, a rate of 45 cents a cubic foot.

At this stage, the first and second floors and basement were let on a long term lease as a branch office for the Integrity Trust Company, which had occupied the site previously. This made possible certain changes in the exterior—a green marble base course and door frame, bronze entrance doors, grilles and sculptured plaque by A. Bottiau, and prism lighting fixtures. The Broad Street entrance became the main portal to both the banking quarters and the offices.

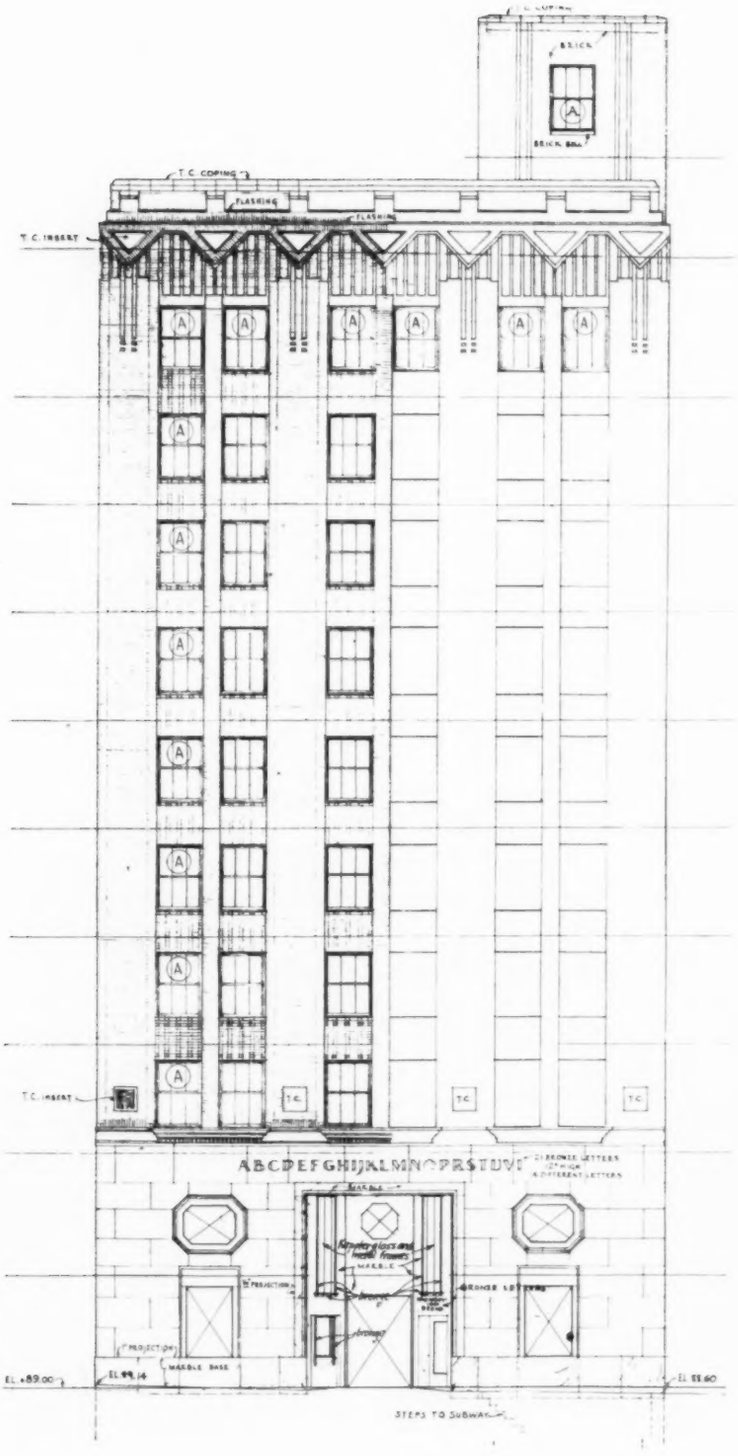
The banking rooms, at the request of the bank, were designed to conform with Georgian precedent.

From the vestibule the public space leads through a vaulted concourse, with the officers' space at one side, to the main banking room beyond. In the center of the main room is a large check desk of bronze and marble. On three sides are the tellers' screens of bronze and glass. Four columns of banded marbles support an ornamental ceiling in various shades of gray. The floor has a marble border and a field of colored terrazzo.

On the second floor, reached by stairs and elevator, are conference rooms, title rooms, and the office of the investment department. At the rear, locker and service rooms for staff members.

The safe deposit department is in the basement, separated from the lobby by a heavy bronze grille. The floor is cork, the booths wood painted gray.

The total cost of the banking quarters was $291,600, of which $55,000 was for the vault and $14,000 for equipment.



Upper stories are faced with tapestry brick, lower two stories with Indiana limestone and a green marble base course. Bronze entrance doors. Prism lighting fixtures. Grilles and sculptured plaque designed by A. Bottiau, sculptor.

Gross floor area, 6,485 sq. ft.
Net floor area, 5,300 sq. ft.

DETAIL DRAWING OF FACADE

HARDT OFFICE BUILDING AND COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT

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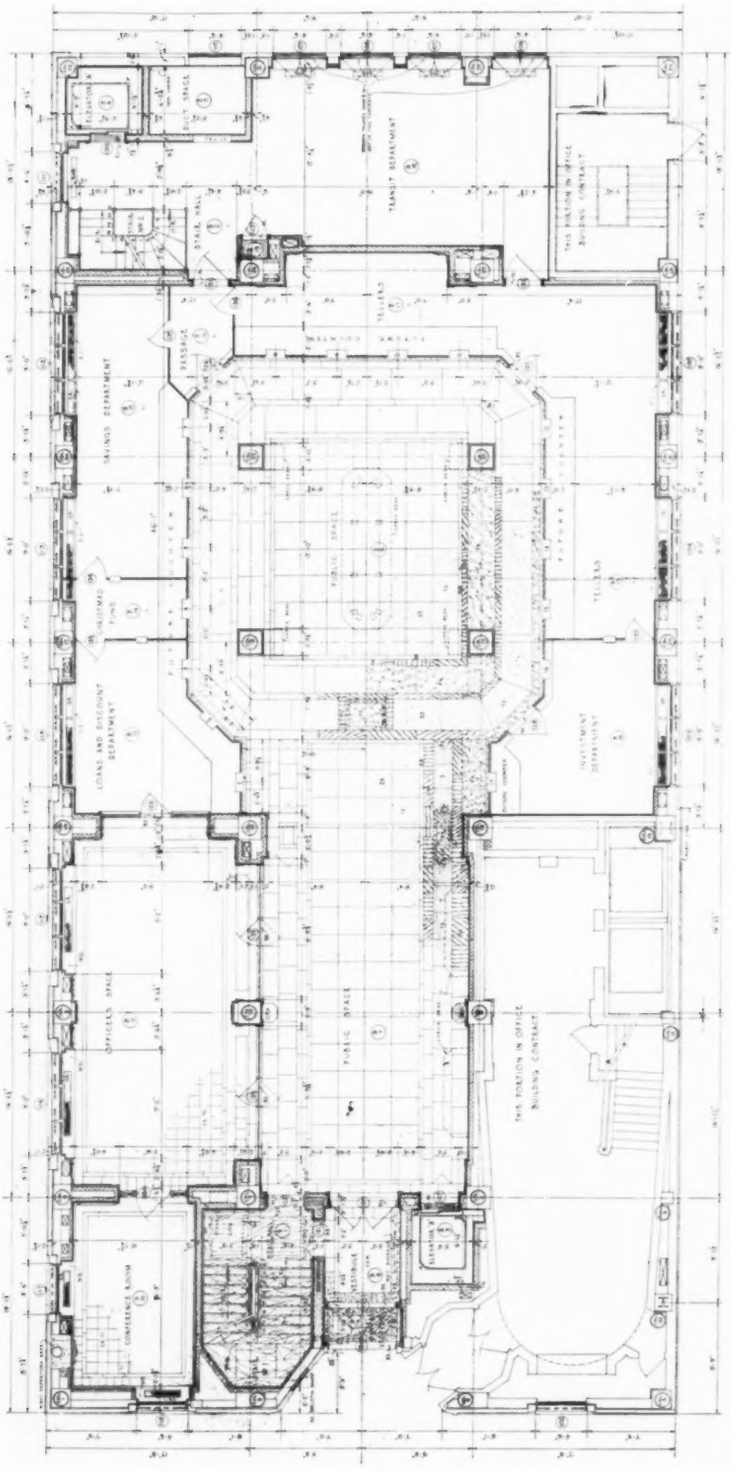
HARDT OFFICE BUILDING AND COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT



The Broad Street entrance is the main portal to both the banking quarters and the office floors above.

From the vestibule the public space leads through a vaulted concourse, with the officers' space on one side, to the main banking room. On three sides are the tellers' screens and in the center a large check desk. Four marble columns support an ornamented ceiling. The floor has a marble border and a field of colored terrazzo.

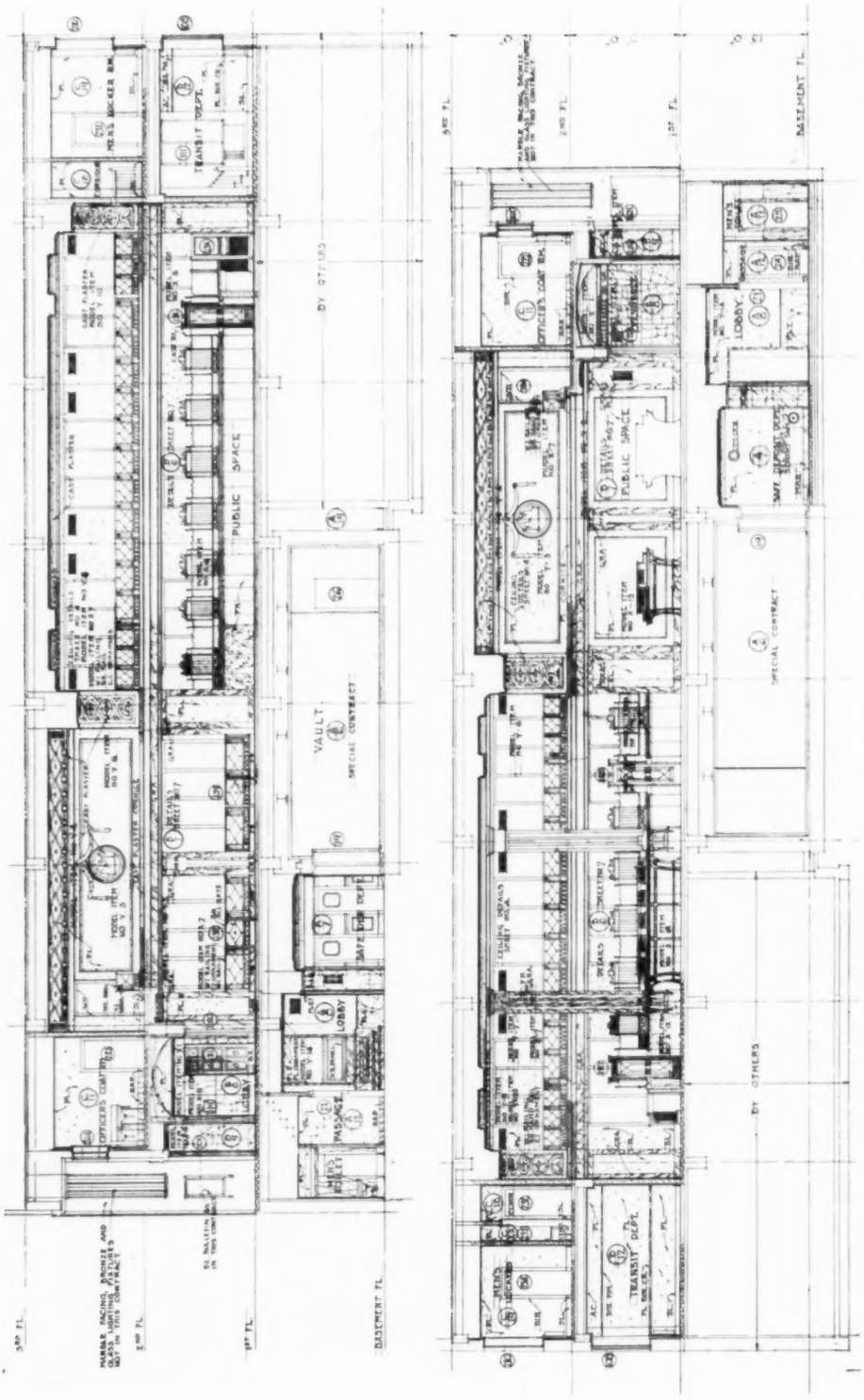
Building contract, $332,400.
Banking quarters, $291,600.

GROUND FLOOR PLAN

HARDT OFFICE BUILDING AND COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT

Rittase

ENTRANCE LOBBY IN COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT



SECTIONS OF BANKING ROOMS, COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT

Rittase

"TRANSPORTATION"—PLAQUE BY A. BOTTIAU, SCULPTOR
BRANCH, INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT

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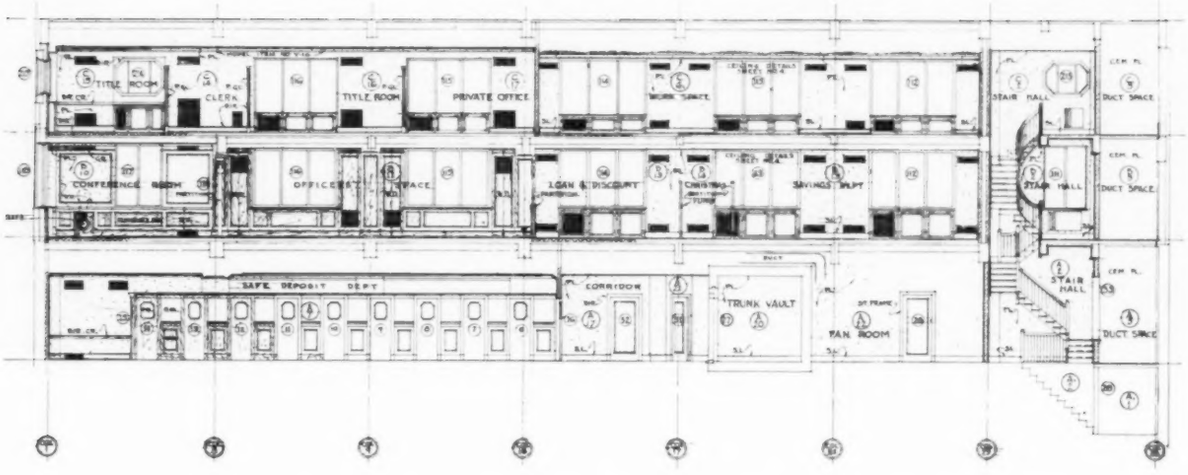
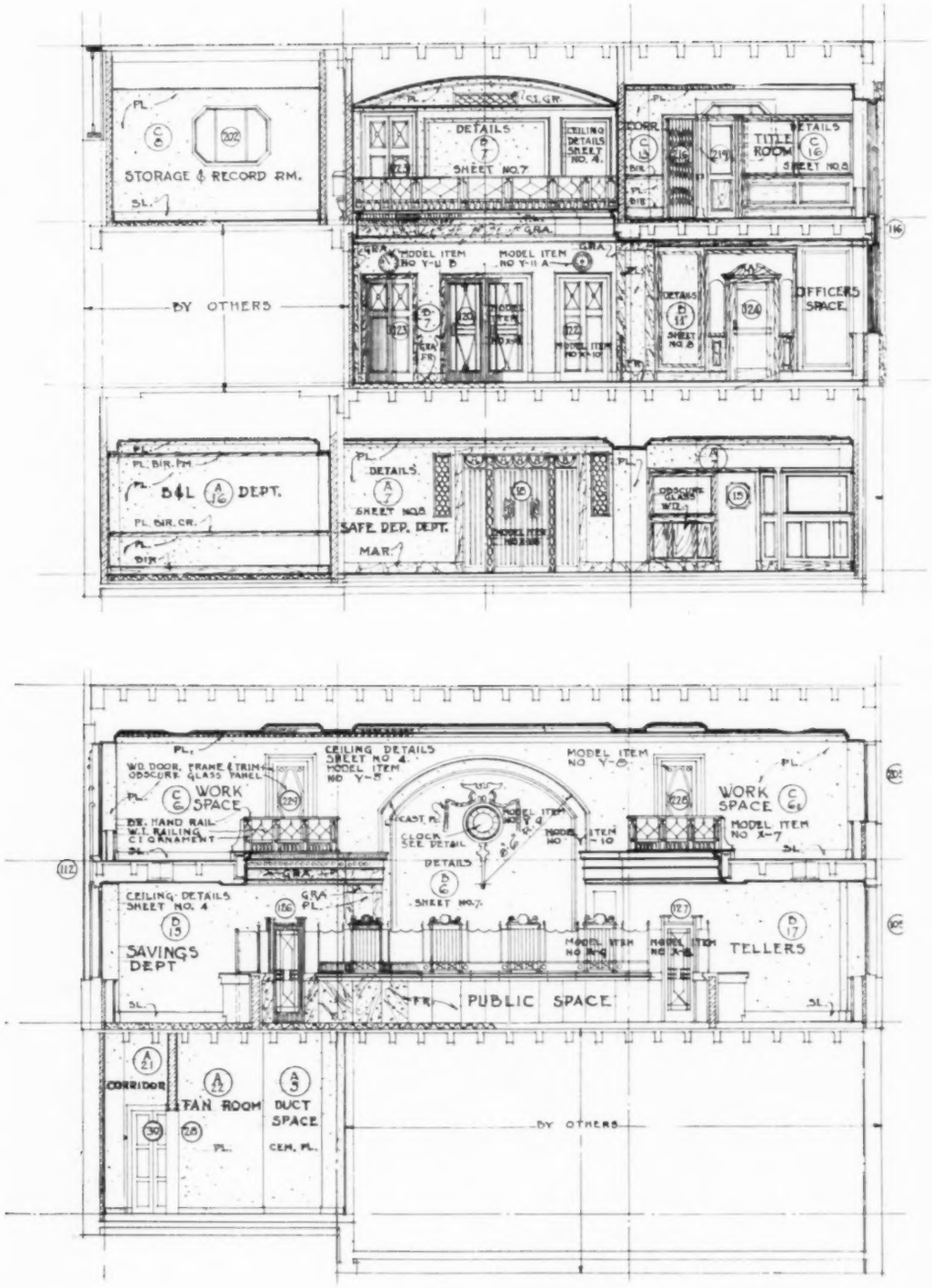
SAFE DEPOSIT ROOM, COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT



STAIR DETAIL, COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT



SECTIONS OF BANKING ROOMS, COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT

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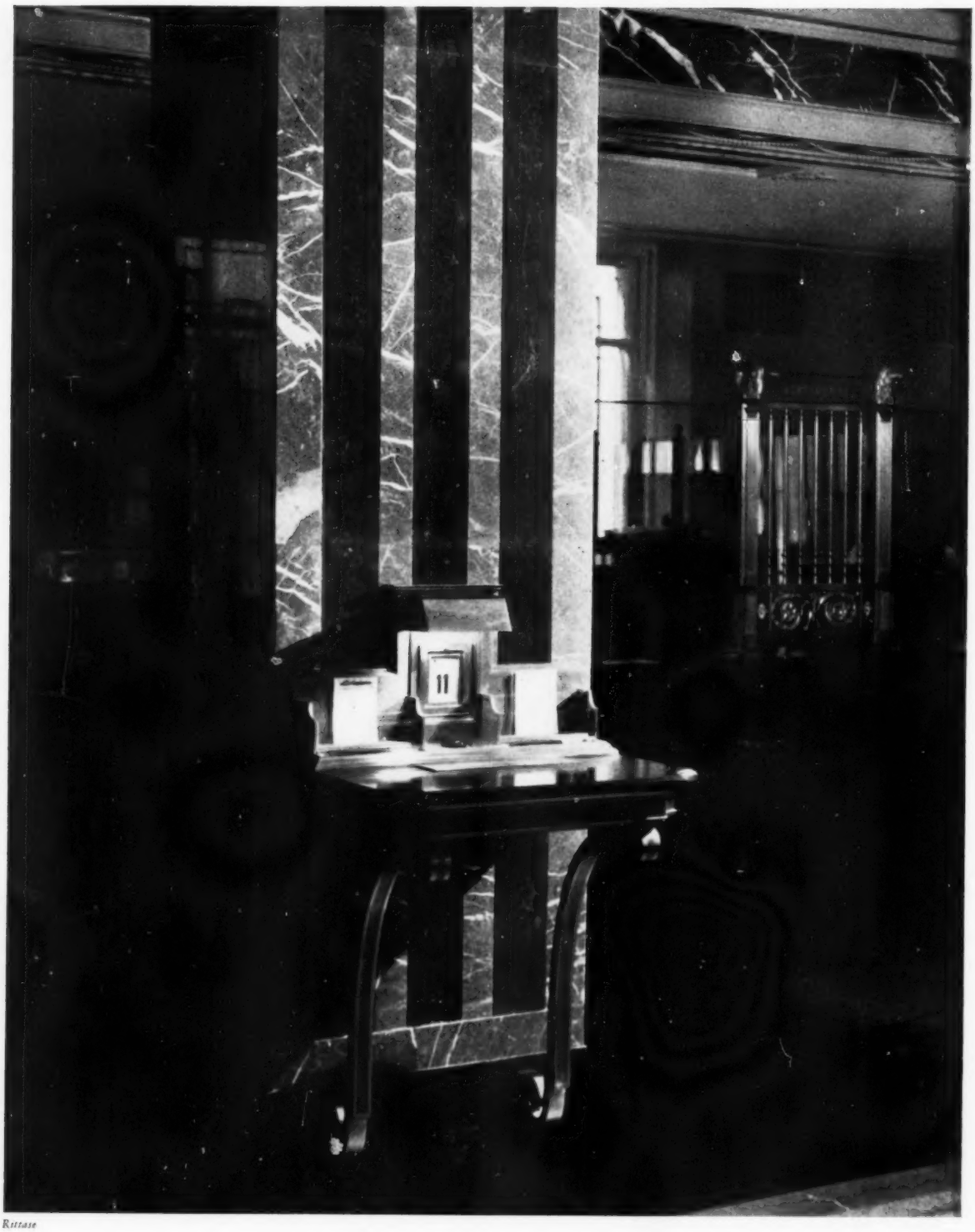
MAIN BANKING ROOM, COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT



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SMALL CHECK DESK IN COLUMBIA-TENTH BRANCH
OF THE INTEGRITY TRUST COMPANY, PHILADELPHIA
PAUL P. CRET, ARCHITECT

Photographs by E. Jensen

BEACH

CLUBS, BATH HOUSES, SWIMMING POOLS, BOARD WALKS, CASINOS

The Club is used for social entertainments as well as for bathing.

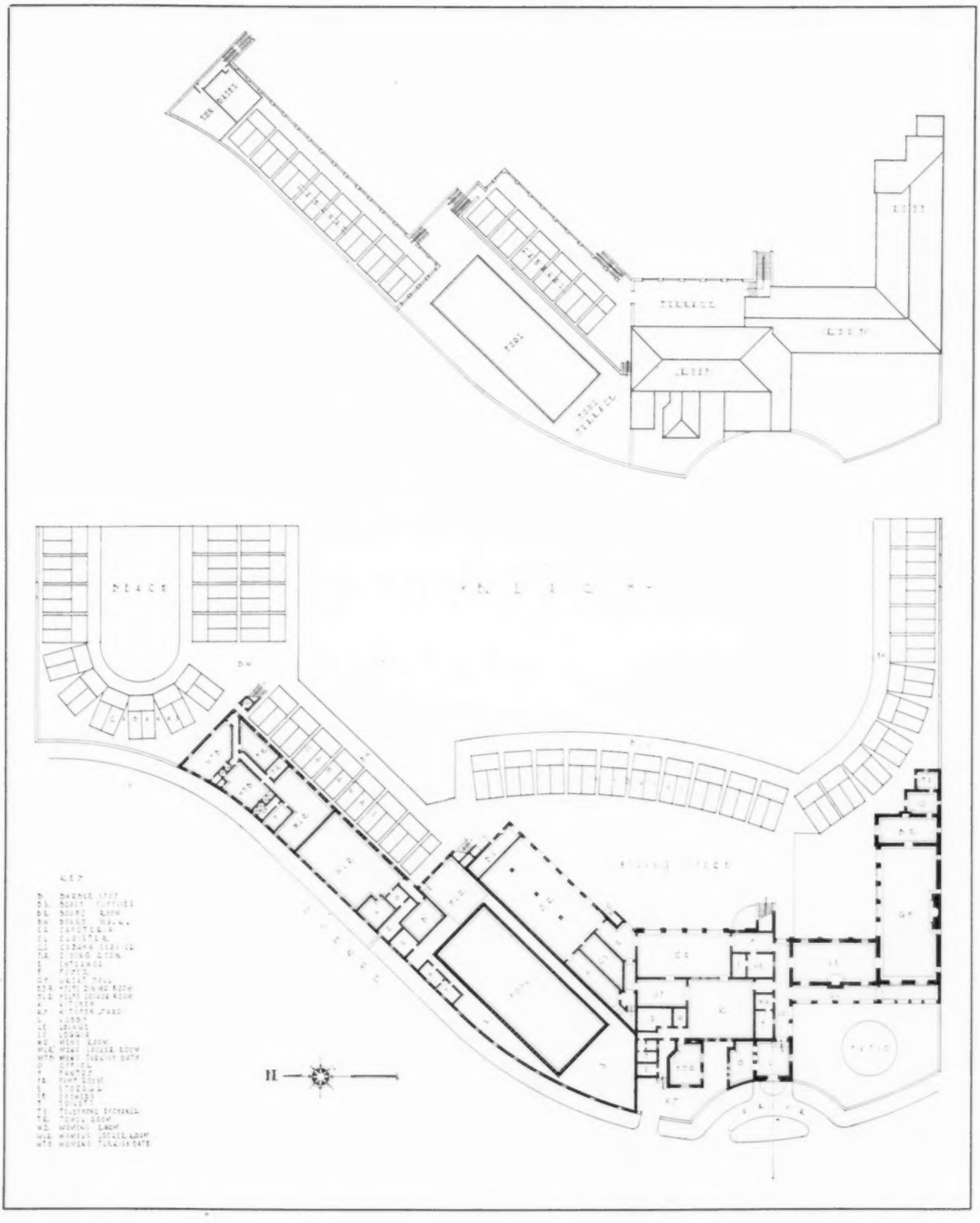
Construction: reinforced concrete, terra cotta blocks, light buff stucco finish.

BATH CLUB, MIAMI BEACH, FLORIDA
ROBERT A. TAYLOR, ARCHITECT

The Cabanas are constructed of wood, painted in many colors.

Canvas canopies and roofs in green, orange and blue.

BATH CLUB, MIAMI BEACH, FLORIDA
ROBERT A. TAYLOR, ARCHITECT



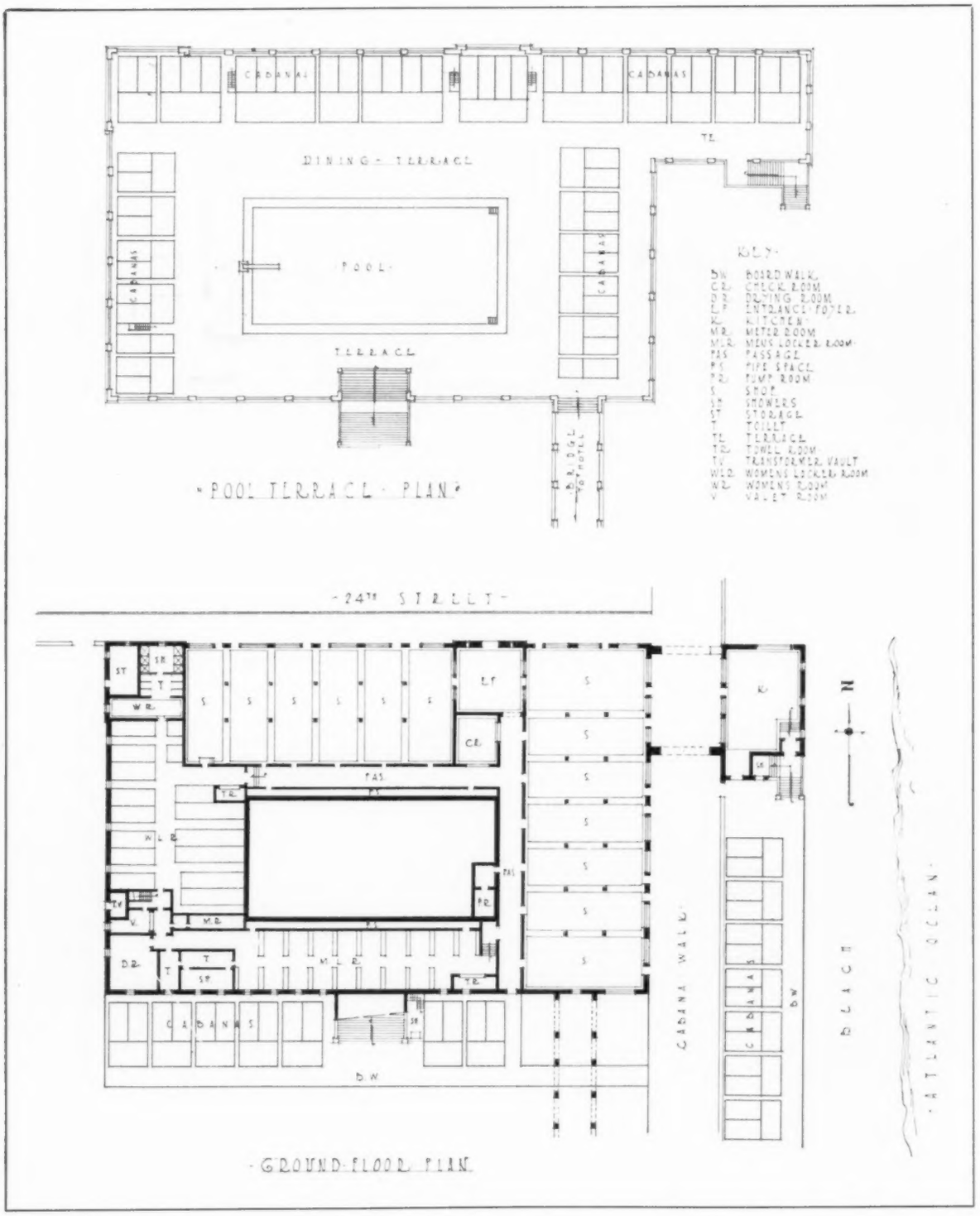
Total cost: approximately $300,000. Cubic foot cost: 35c.

BATH CLUB, MIAMI BEACH, FLORIDA
ROBERT A. TAYLOR, ARCHITECT

Swimming pool of reinforced concrete, finished in waterproof plaster.

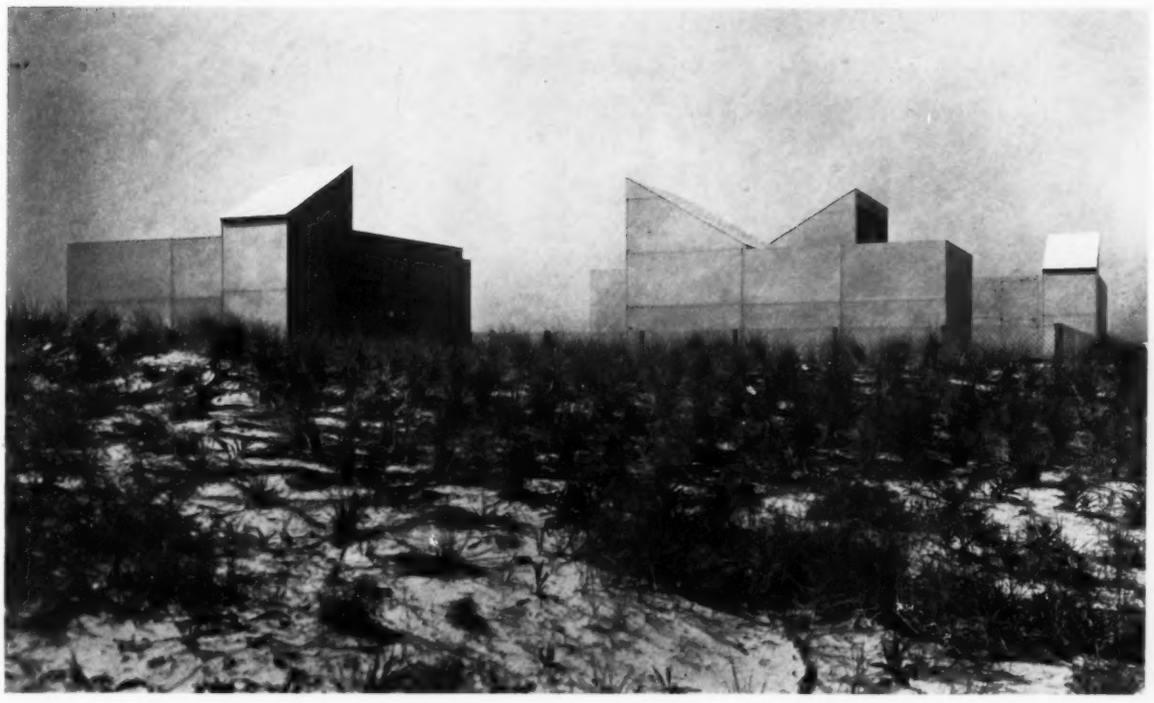
The Sun Club is in connection with the Roney Plaza Hotel.

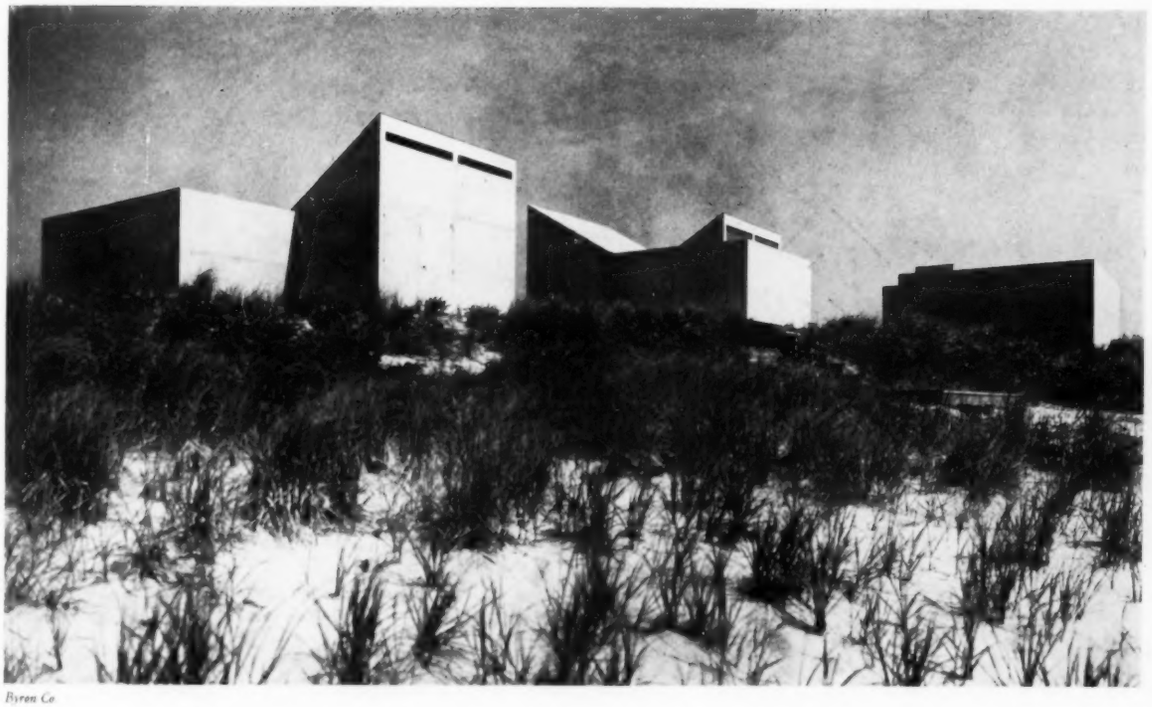
CABANA SUN CLUB, MIAMI BEACH, FLORIDA
ROBERT A. TAYLOR, ARCHITECT



Total cost: approximately $200,000. Cubic foot cost: 32c.

CABANA SUN CLUB, MIAMI BEACH, FLORIDA
ROBERT A. TAYLOR, ARCHITECT

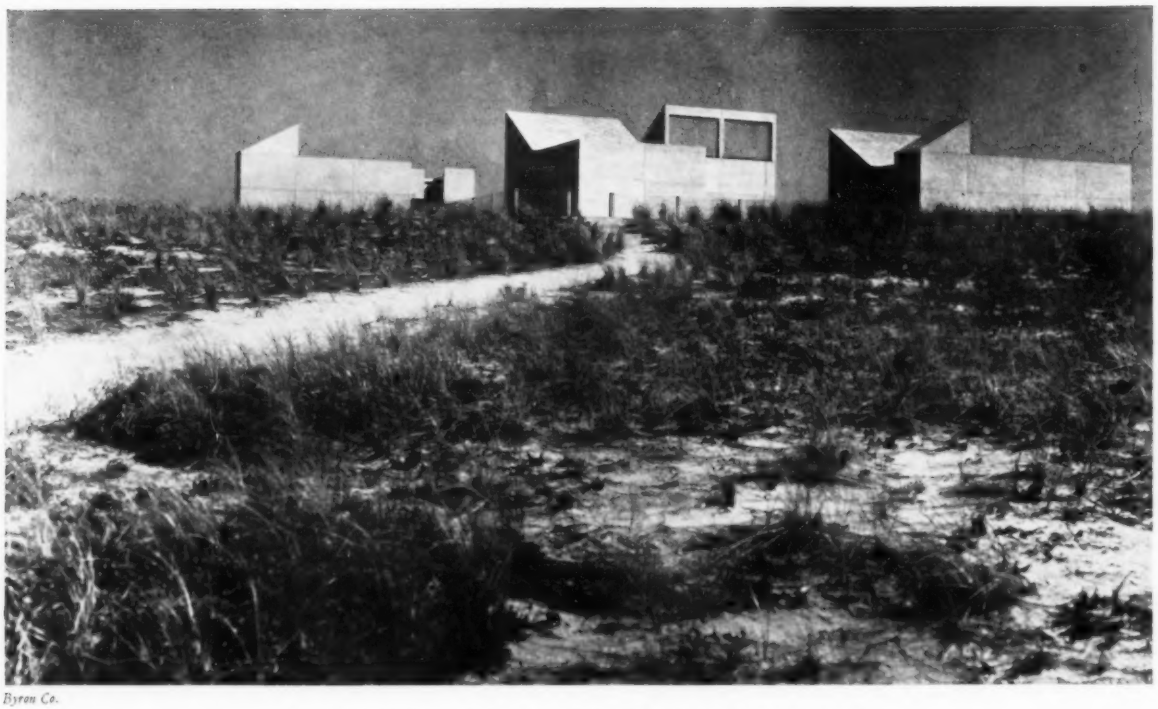




Byron Co.

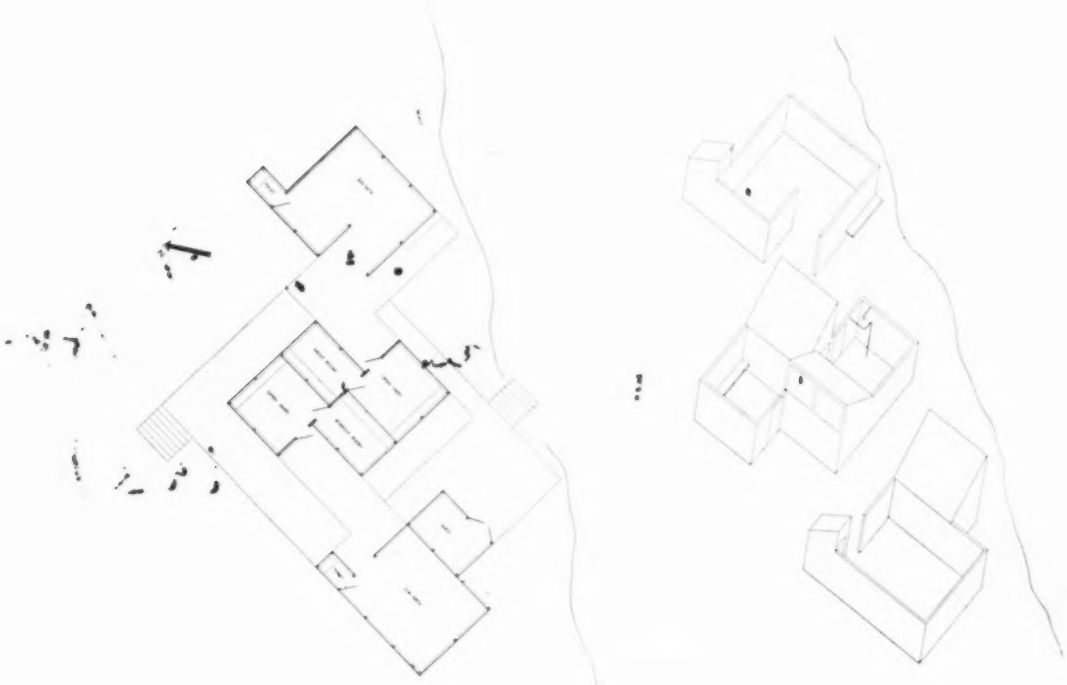
Construction: Transite boards screwed to wood frame, verticals in cement.

BATH HOUSES NEAR SOUTHAMPTON, LONG ISLAND
WILLIAM MUSCHENHEIM, ARCHITECT

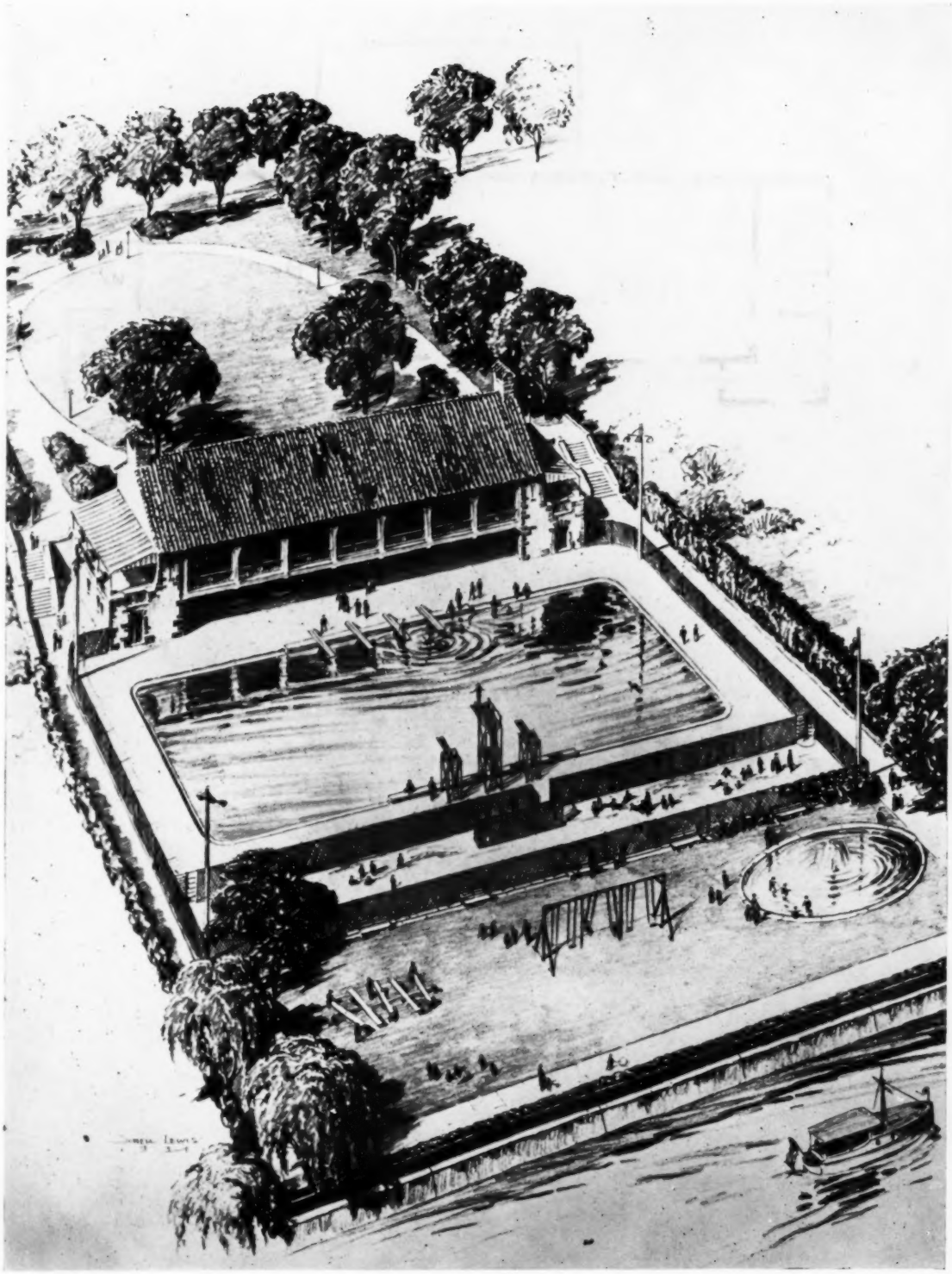


Byron Co.

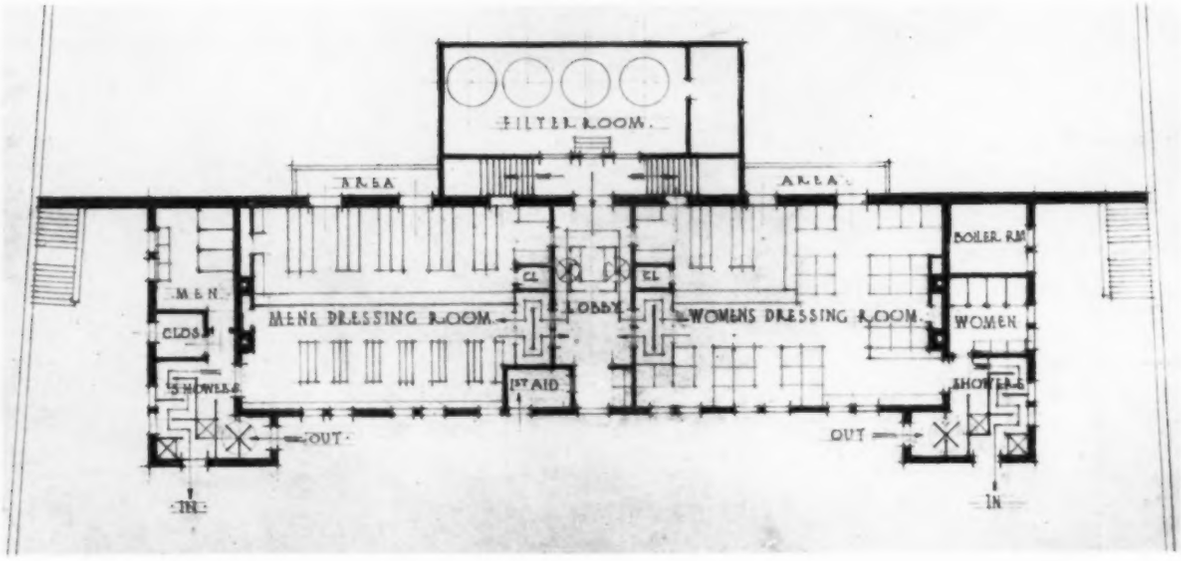
BATH HOUSES NEAR SOUTHAMPTON, LONG ISLAND
WILLIAM MUSCHENHEIM, ARCHITECT



Buildings are orientated to give ample sunlight to the bathers who wish privacy.



SWIMMING POOL AND BATH HOUSE
FABER PARK, STATEN ISLAND, NEW YORK
SIBLEY AND FETHERSTON, ARCHITECTS

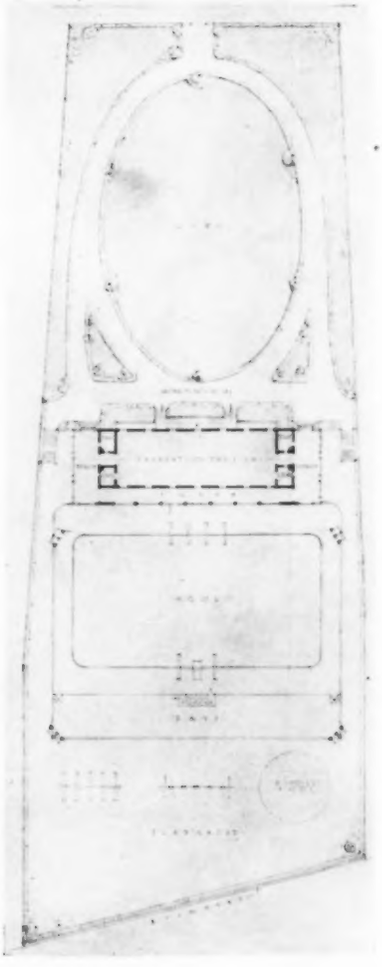


PLAN OF BATH HOUSE

SWIMMING POOLS AND PLAYGROUNDS

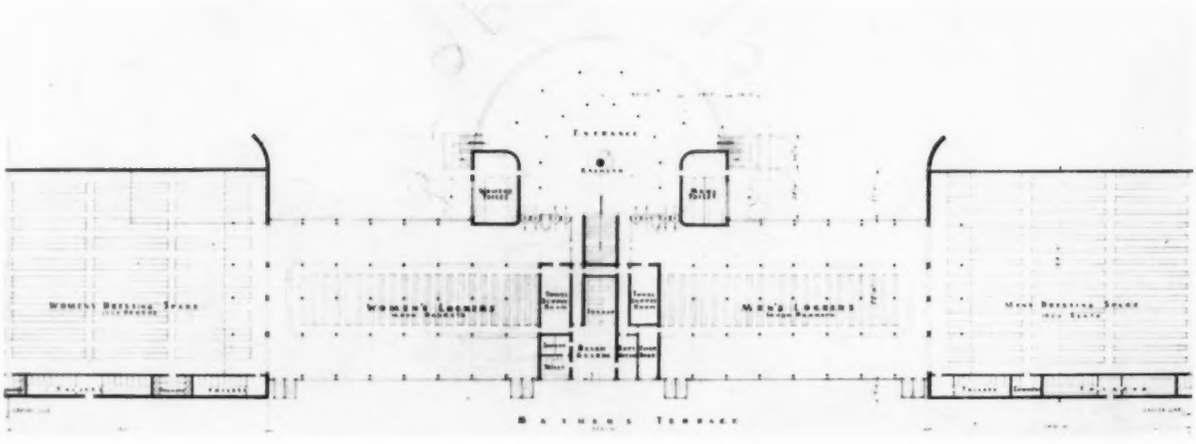
"It is desirable that swimming pools adjoin a field house with locker facilities. This is an aid in supervision, a safety measure in case of accident, and a convenience to the bathers. Swimming pools should be well screened from the street . . . "

From A PLAYGROUND HANDBOOK, published by the Chamber of Commerce of the United States.



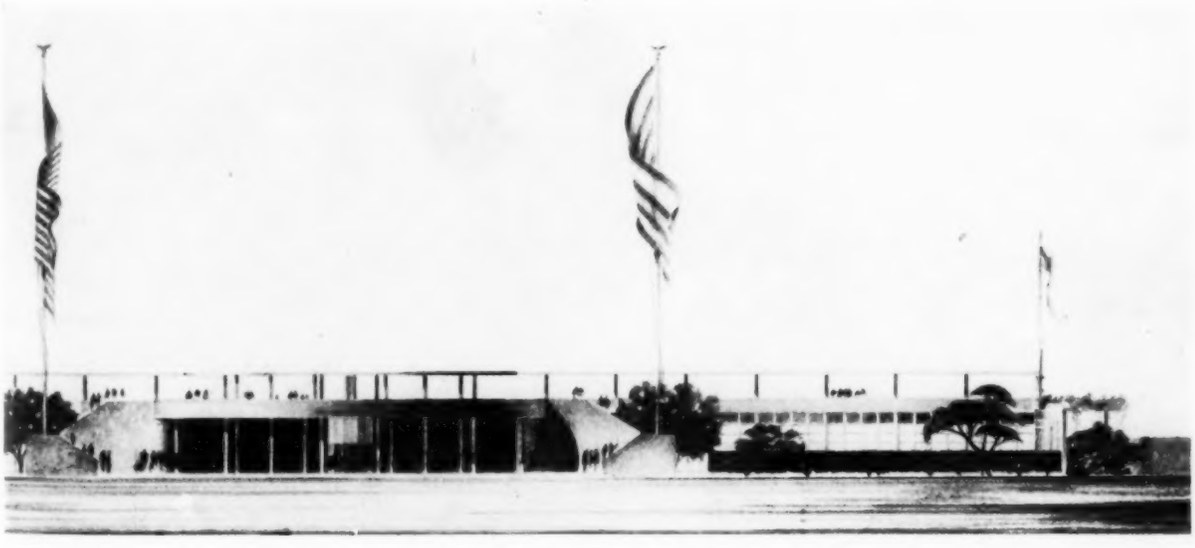
SWIMMING POOL AND BATH HOUSE
FABER PARK, STATEN ISLAND, NEW YORK
SIBLEY AND FETHERSTON, ARCHITECTS

FRONT ENTRANCE ELEVATION



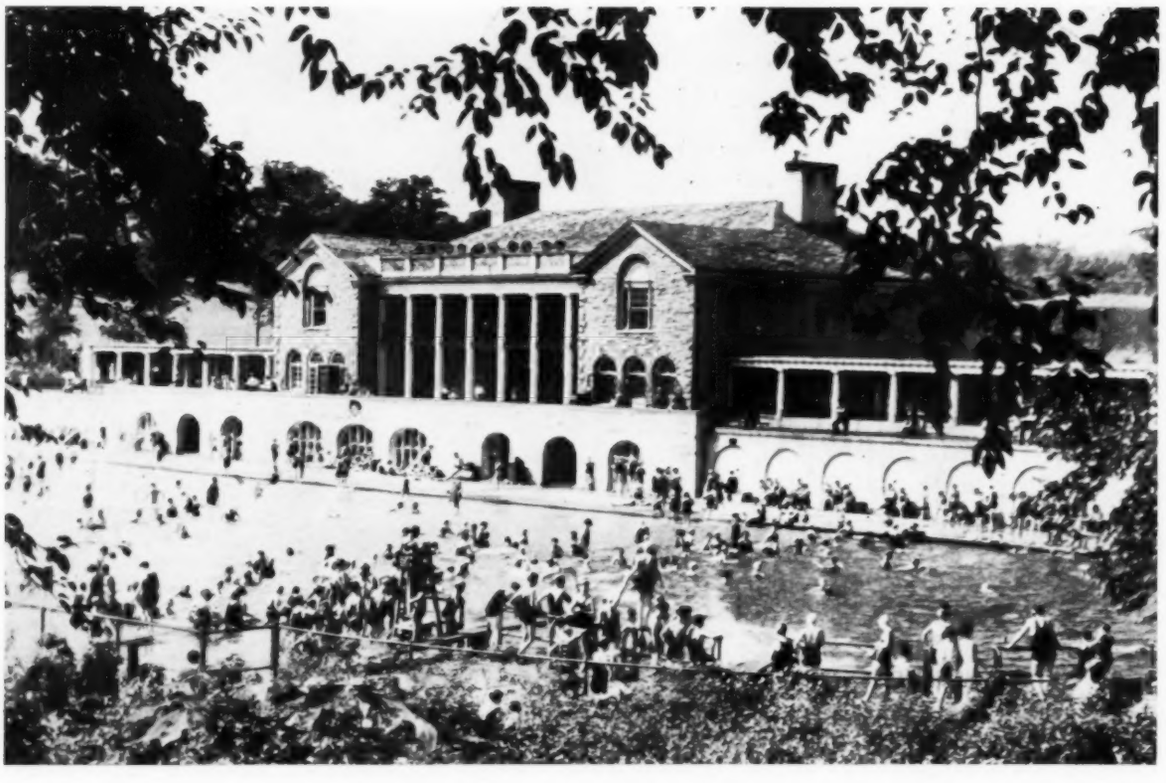
GROUND FLOOR PLAN

Construction: Monolithic concrete, surface left exposed. Roof only partly projected over dressing space.



DETAIL OF FRONT ENTRANCE

BATHING PAVILION
LINCOLN PARK, CHICAGO
BENJAMIN H. MARSHALL, ARCHITECT



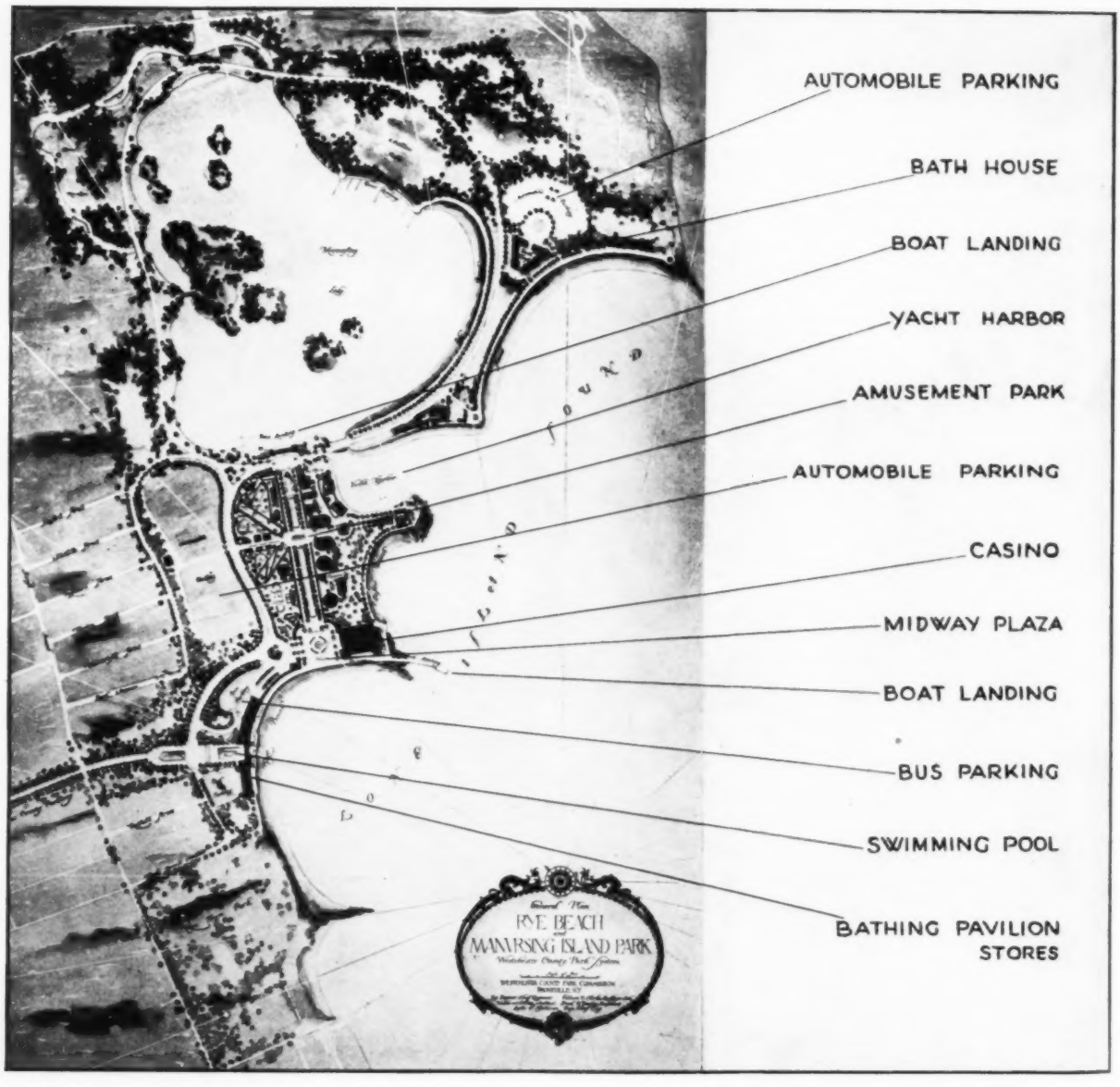
SUBURBAN POOL IN TIBBETTS BROOK PARK
WESTCHESTER COUNTY PARK SYSTEM, NEW YORK
O. J. GETTE, CONSULTING ARCHITECT
GILMORE D. CLARKE, LANDSCAPE ARCHITECT

Galloway

PLAYLAND SWIMMING POOL, RYE BEACH
WESTCHESTER COUNTY PARK SYSTEM, NEW YORK
JAY DOWNER, CHIEF ENGINEER
GILMORE D. CLARKE, LANDSCAPE ARCHITECT

Westchester County Park Commission

PLAYLAND SWIMMING POOL, RYE BEACH



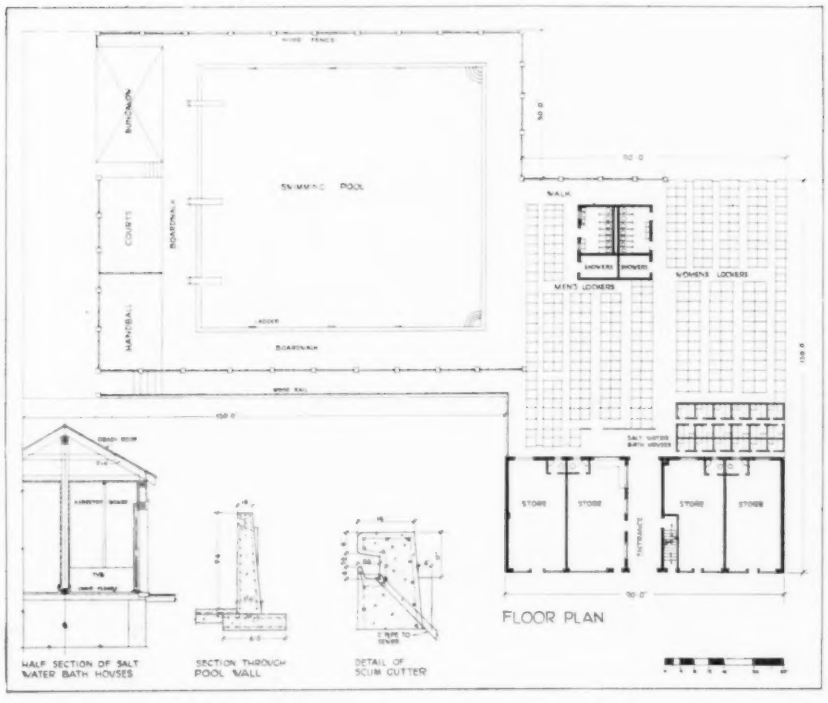
Galloway

PLAYLAND AT RYE BEACH
WESTCHESTER COUNTY PARK SYSTEM, NEW YORK
JAY DOWNER, CHIEF ENGINEER
GILMORE D. CLARKE, LANDSCAPE ARCHITECT

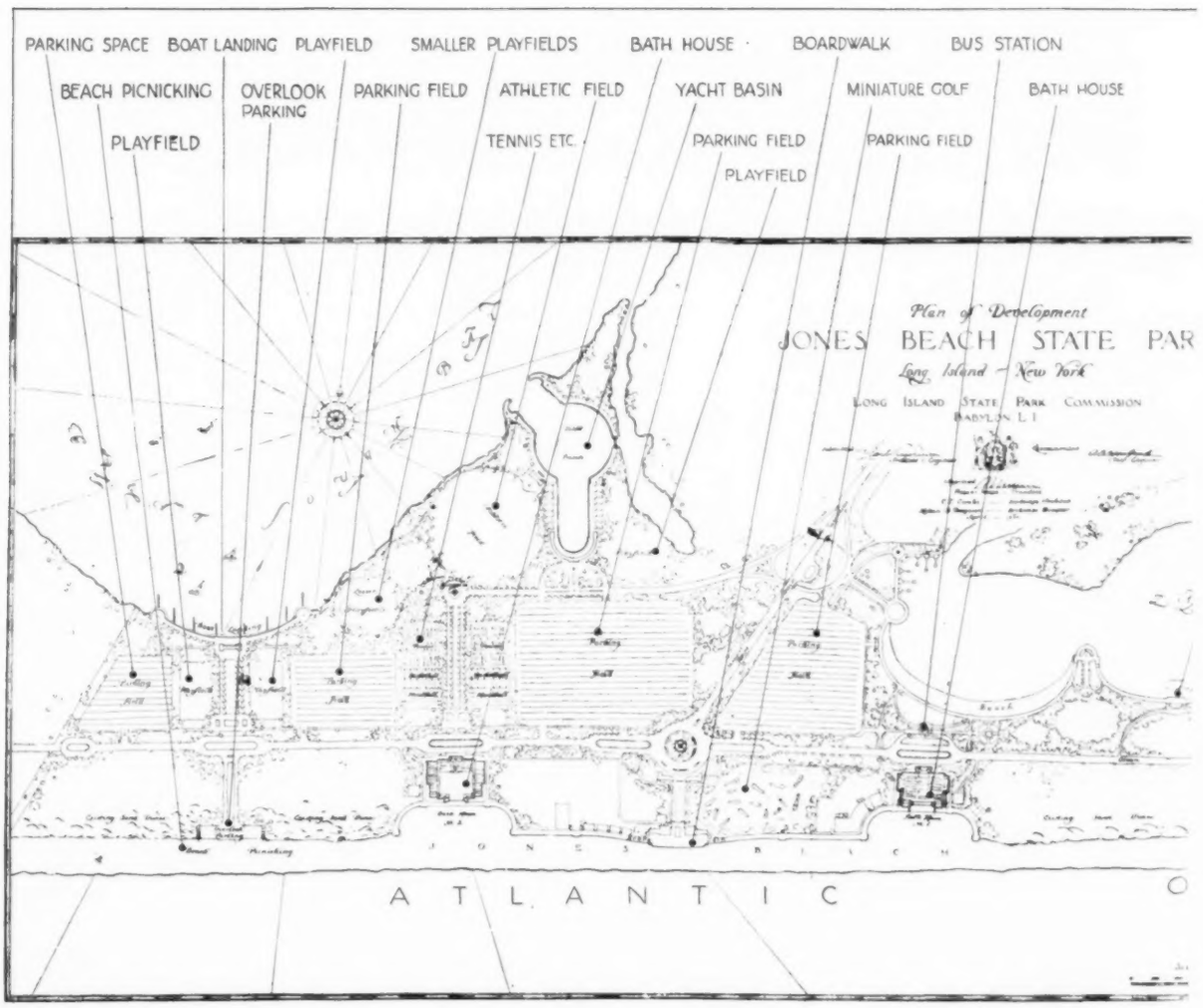
STORES ON REDUCED STREET FRONTAGE IN CONJUNCTION WITH SWIMMING POOL AND BATH HOUSE

BELMAR, NEW JERSEY

RUDOLPH KRUGER
ARCHITECT



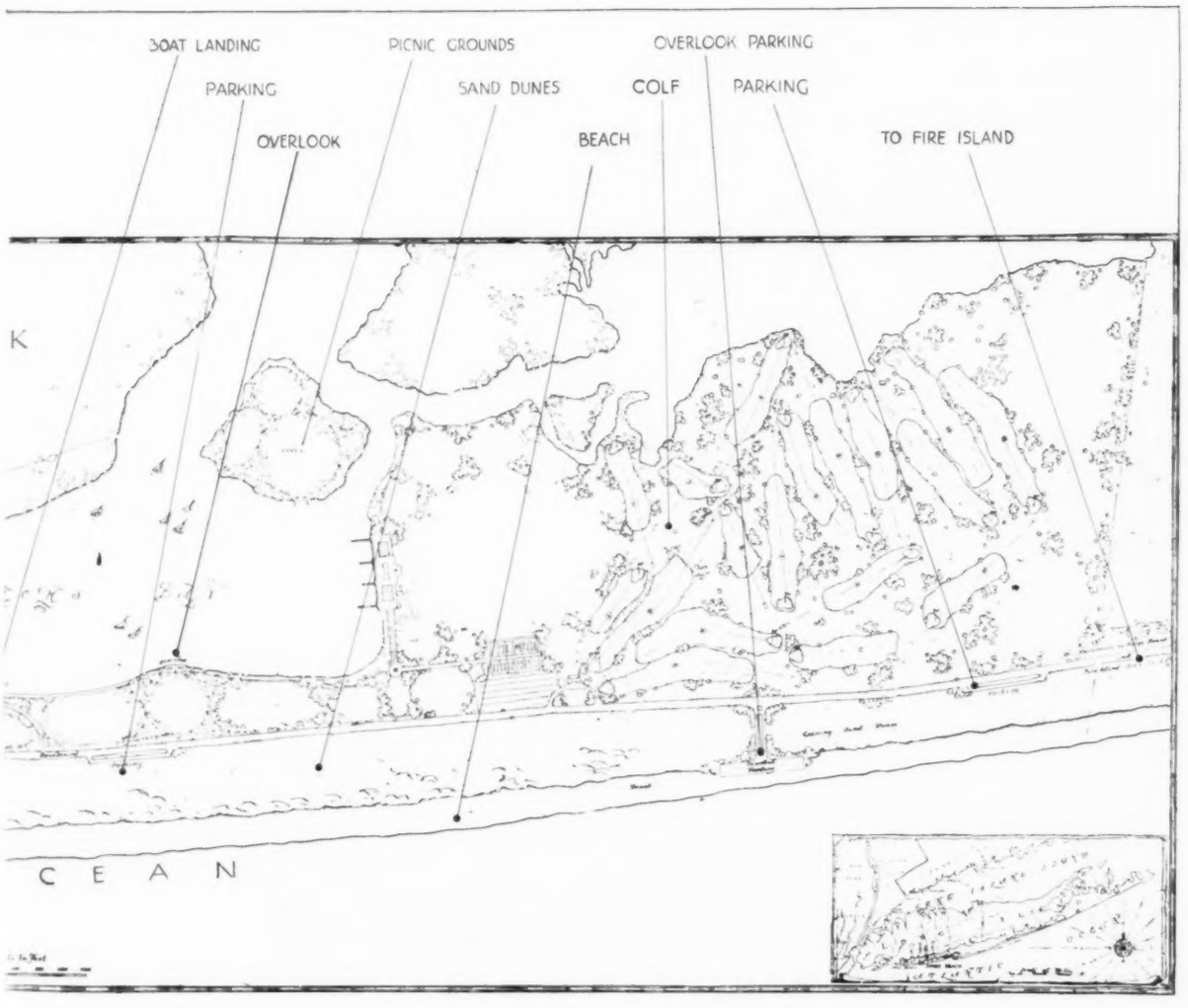
EAST BATHING PAVILION



JONES BEACH STATE PARK, LONG ISLAND
HERBERT A. MAGOON, ARCHITECT
W. EARLE ANDREWS, ENGINEER

Keystone

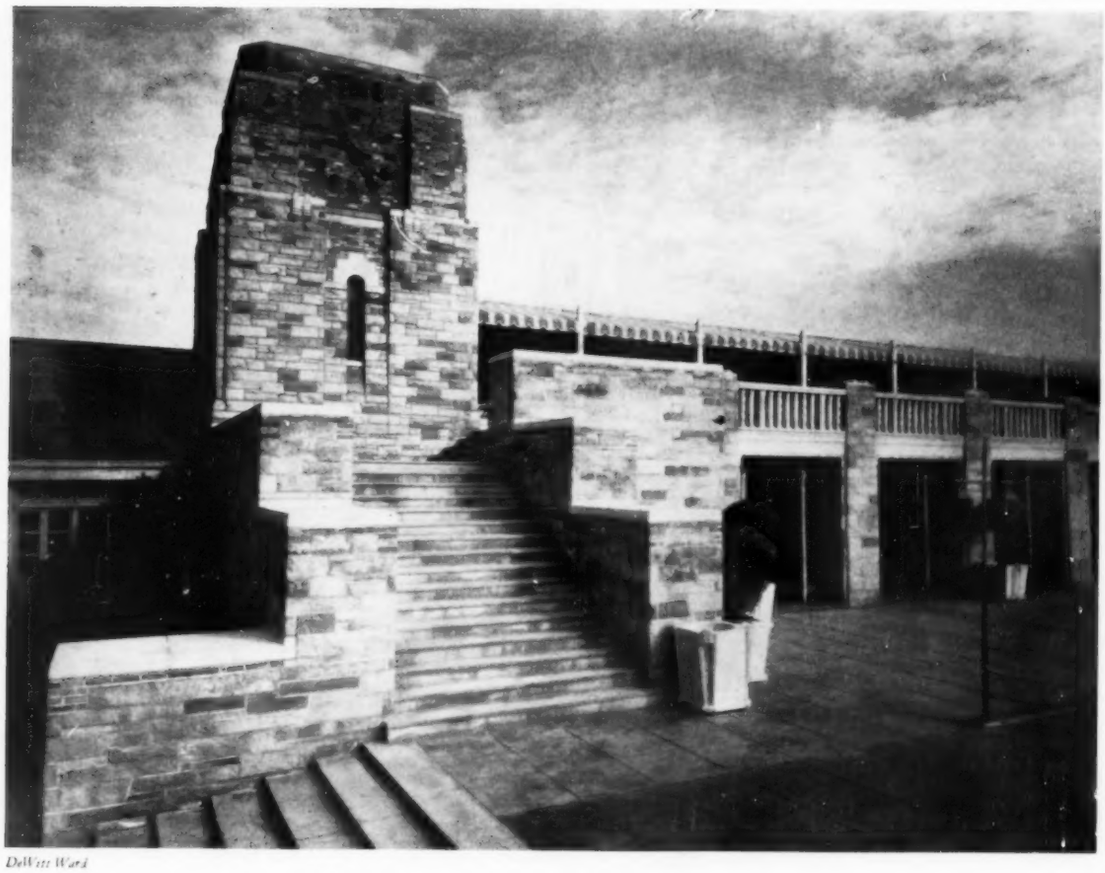
BOARD WALK AND BATH HOUSE



JONES BEACH STATE PARK, LONG ISLAND
HERBERT A. MAGOON, ARCHITECT
W. EARLE ANDREWS, ENGINEER

Douglas

HIGHWAY UNDERPASS FOR PEDESTRIANS



DeWitt Ward

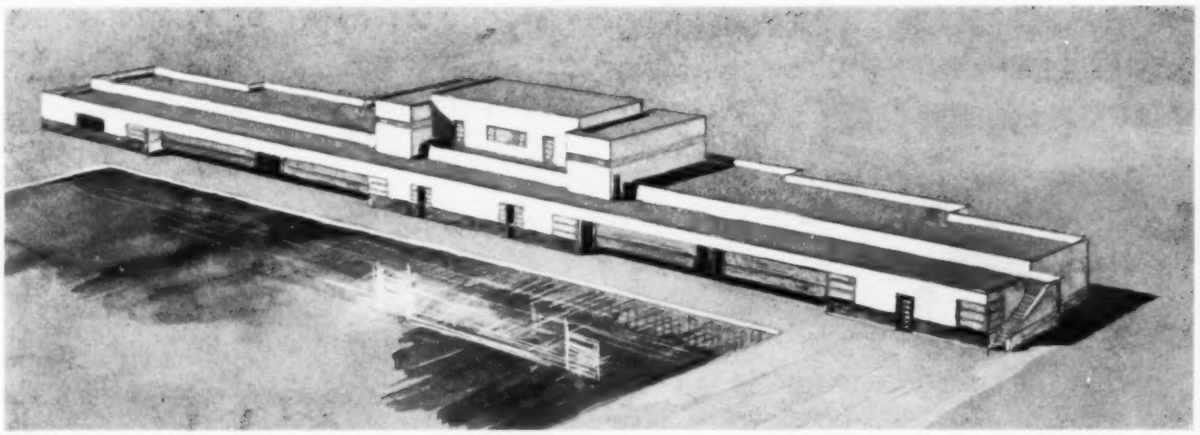
CLOCK TOWER OF EAST BATHING PAVILION
JONES BEACH STATE PARK, LONG ISLAND
HERBERT A. MAGOON, ARCHITECT
W. EARLE ANDREWS, ENGINEER

Douglas

REFRESHMENT TERRACE AND BOARD WALK
JONES BEACH STATE PARK, LONG ISLAND
HERBERT A. MAGOON, ARCHITECT
W. EARLE ANDREWS, ENGINEER

Galloway

SWIMMING POOL, LAKE LOUISE, CANADA
P. LEONARD JAMES, ARCHITECT

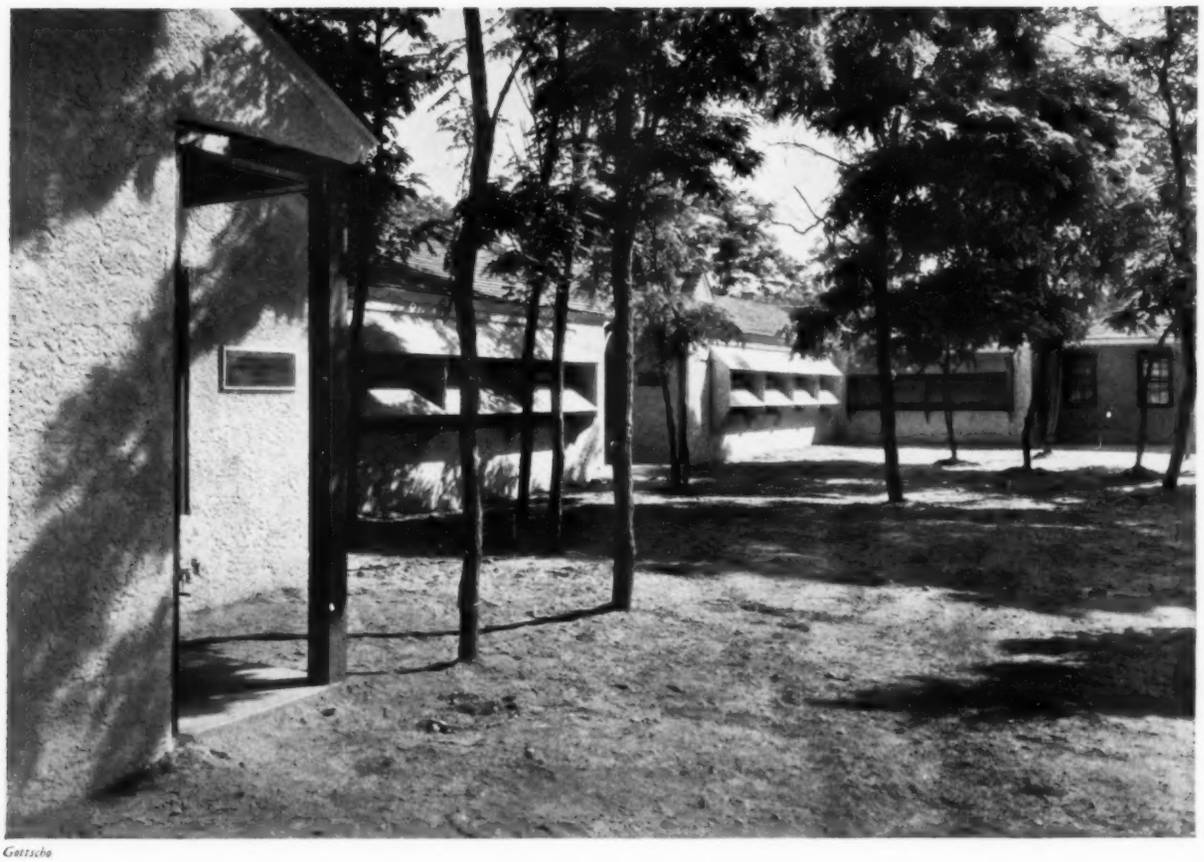


Construction of bath house now under way: Transite, Duco finish, green and white. Approximate cost, $80,000.

AIRPORT SWIMMING POOL, WASHINGTON, D. C.
L. C. HOLDEN AND R. D. STOTT, ARCHITECTS

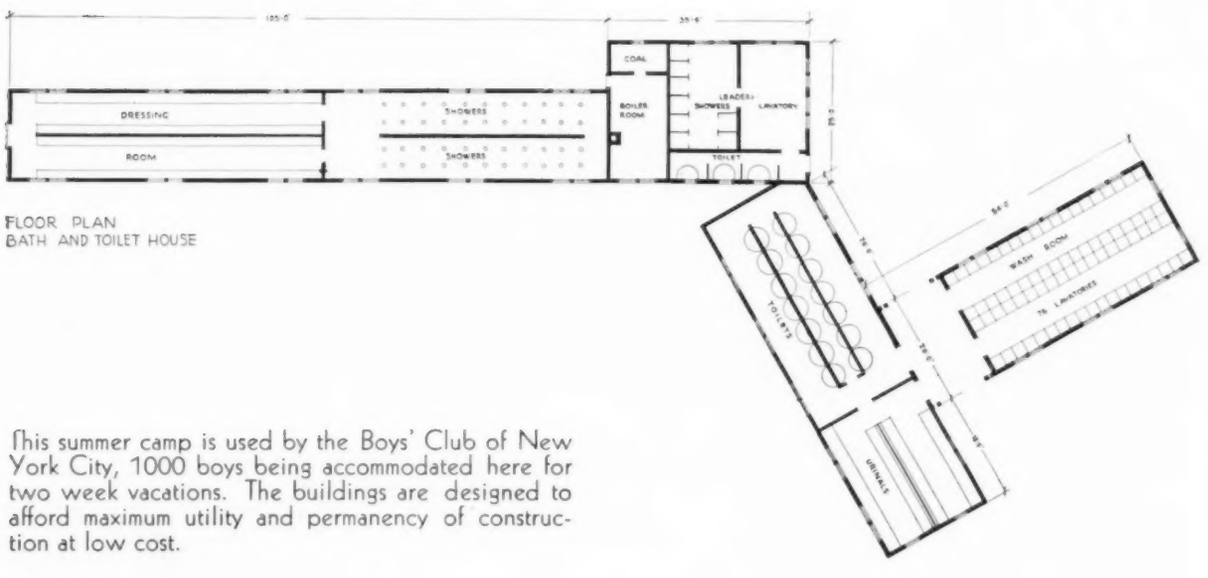
Fitch Studios

ROOF TERRACE
JOSEPH M. MASTEN BEACH HOUSE, LA JOLLA, CALIF.
J. KENDALL MASTEN, ARCHITECT



Gottscho

DORMITORY GROUP
CAMP WILLIAM CAREY, JAMESPORT, LONG ISLAND
HOWARD AND FRENAYE, ARCHITECTS

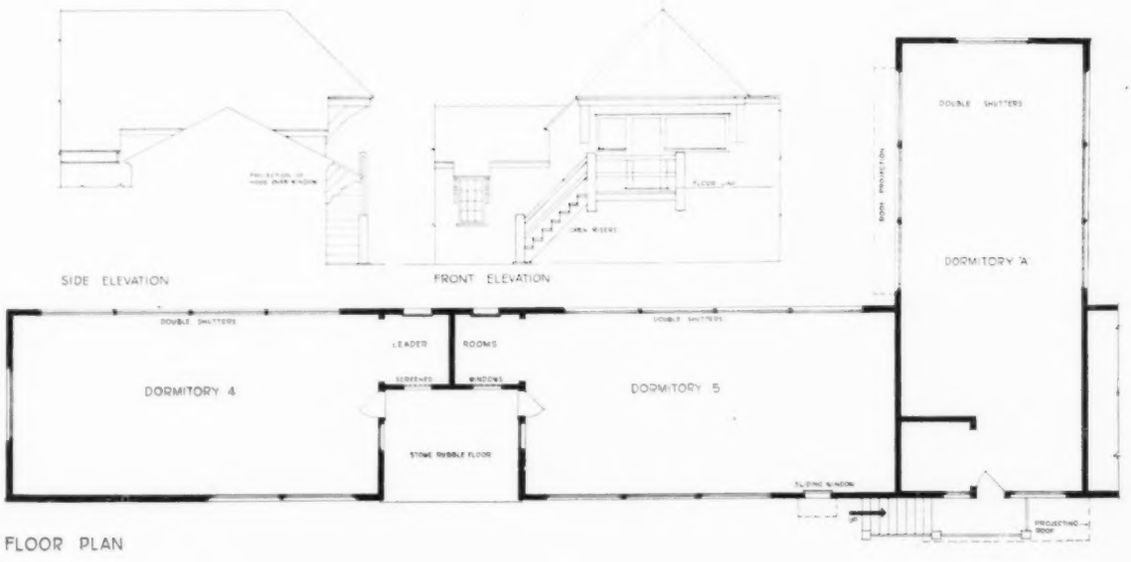


FLOOR PLAN
BATH AND TOILET HOUSE

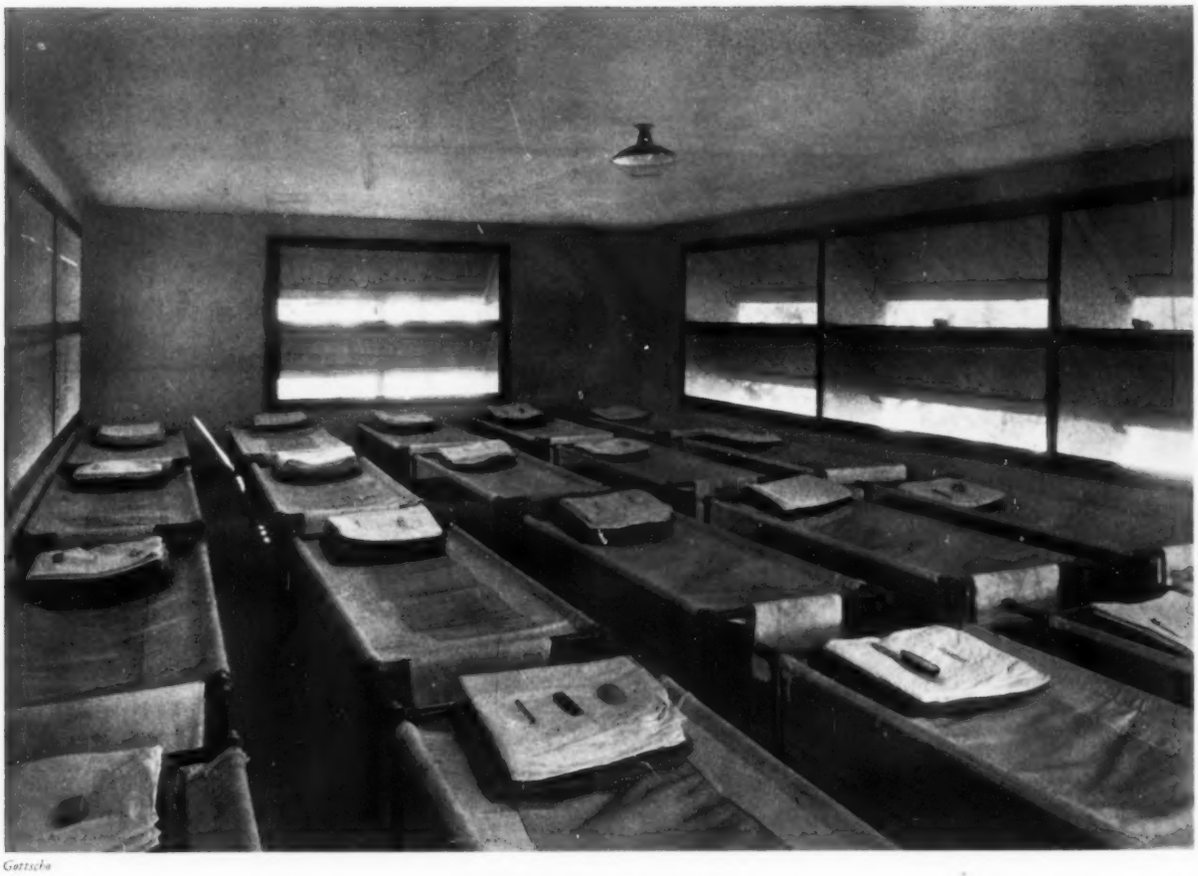
This summer camp is used by the Boys' Club of New York City, 1000 boys being accommodated here for two week vacations. The buildings are designed to afford maximum utility and permanency of construction at low cost.

Gottscho

MAIN DORMITORY
CAMP WILLIAM CAREY, JAMESPORT, LONG ISLAND
HOWARD AND FRENAYE, ARCHITECTS



FLOOR PLAN



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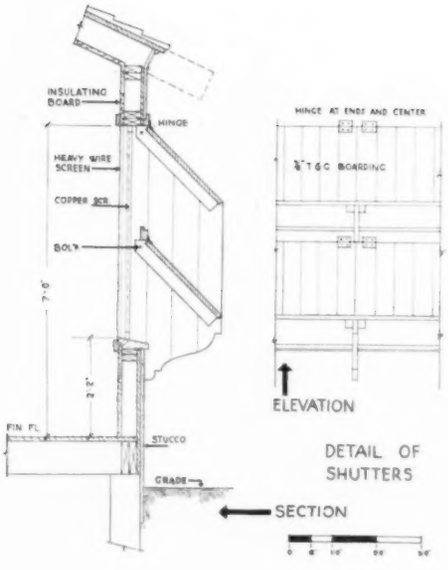
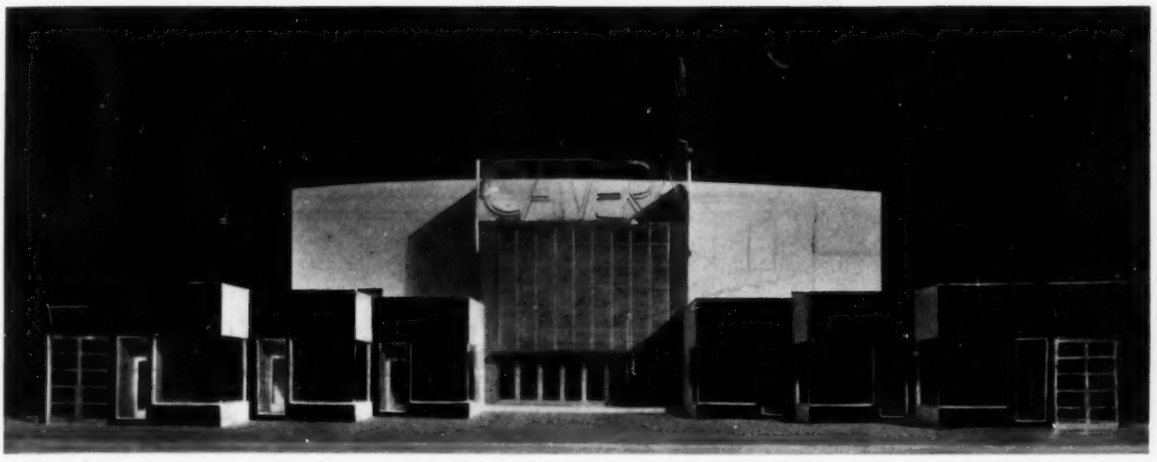
INTERIOR OF DORMITORY
CAMP WILLIAM CAREY, JAMESPORT, LONG ISLAND
HOWARD AND FRENAYE, ARCHITECTS



No glass is used in windows. Shutters are arranged to furnish adequate daylight and weather protection. During winter, when the camp is not in use, the shutters are lowered and fastened to keep out intruders.



Nyholm and Lincoln

A MOTION PICTURE THEATER
FOR A SUBURBAN TOWN IN NEW YORK

JOSEPH URBAN, ARCHITECT

By Irvin L. Scott

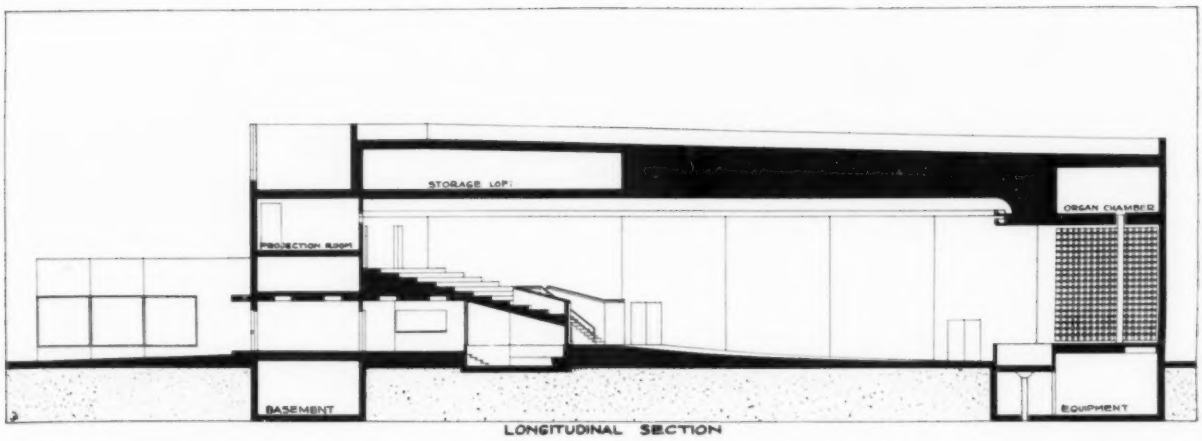
In this theater the complete elimination of all features and details not contributing to the functions of the theater or to the comfort of the audience has been attempted. The program called for, with a limited financial outlay, a theater seating 1200 persons on a lot 140 feet in width and 210 feet in depth, fronting on one of the main thoroughfares of Westchester County. Six 1-story shops with a minimum of 500 square feet each and fronting on the street were to be incorporated in the scheme.

The lawful side exits for a theater of this capacity required 9 feet clear passageway to the street from the courts on either side. This largely determined the maximum width of the building. The required 26 feet of exit doors directly from the lobby to the street left a maximum of 96 feet to be utilized as store frontage. Since a great deal of the patronage to these shops would be drawn from the patrons of the theater, it was important to give each store an equal amount of "contact." The stepped-back or echelon arrangement was adopted for this purpose; at the same time it provides an open approach to the theater.

Given the store frontage, the depth became a multiple of the prescribed 500 square feet and fixed the position of the rear wall of the auditorium. The simplest, most economical means of housing the 1200 required seats and of providing maximum visibility were the determining factors in arriving at the form shown. Likewise, in order to minimize the cubage and to provide easy exit and circulation, the stadium type was adopted with foyers and accessories underneath the gallery.

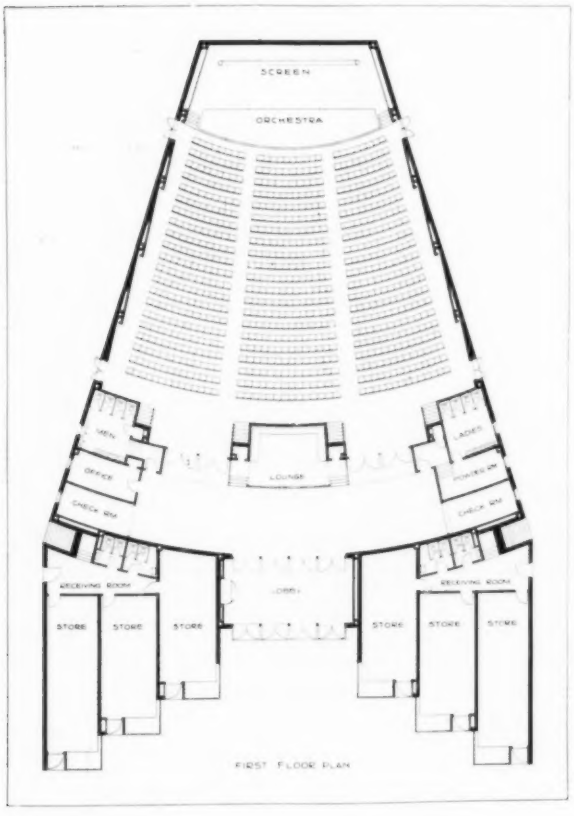
The fixed Grandeur screen with passageways at sides to the rear of the screen determined the width of the back stage wall. The limit of good visibility for the front seats on either side was taken as being within an angle of 45 degrees to the center of the screen. The minimum distance from any seat to the stage then became 25 feet; the maximum, 124 feet.

The auditorium roof is carried on trusses 18 feet on center, spanning the entire width forward to the gallery. Owing to the decreasing width, the trusses decrease proportionately in depth, thus giving a natural slope to the roof for drainage. The rear

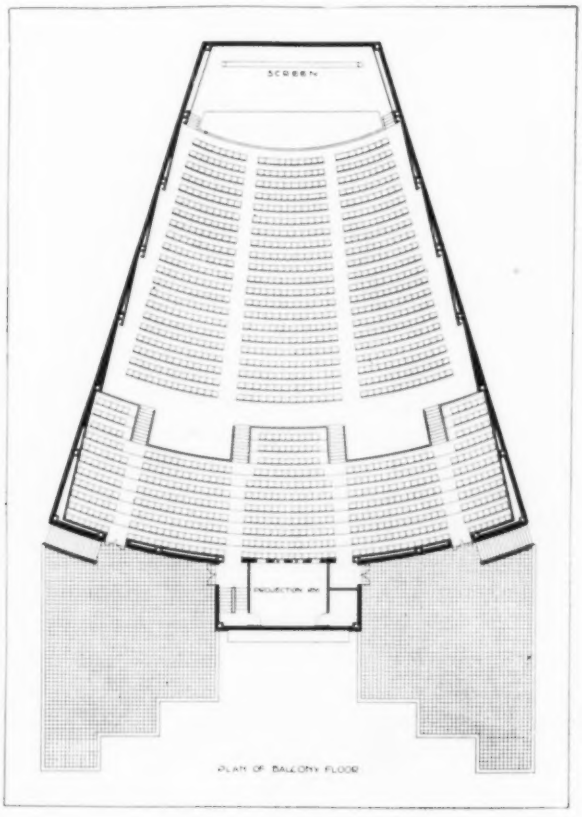


LONGITUDINAL SECTION

The theater seats 1200 persons. Minimum distance to stage from any seat is 25 feet; maximum, 124 feet. Side walls are furred to create vertical ventilation ducts and to provide vertical dimmer-controlled lighting coves. Color scheme of exterior is black and white stucco and opaque ultramarine blue glass. All metal work is of aluminum.



FIRST FLOOR PLAN



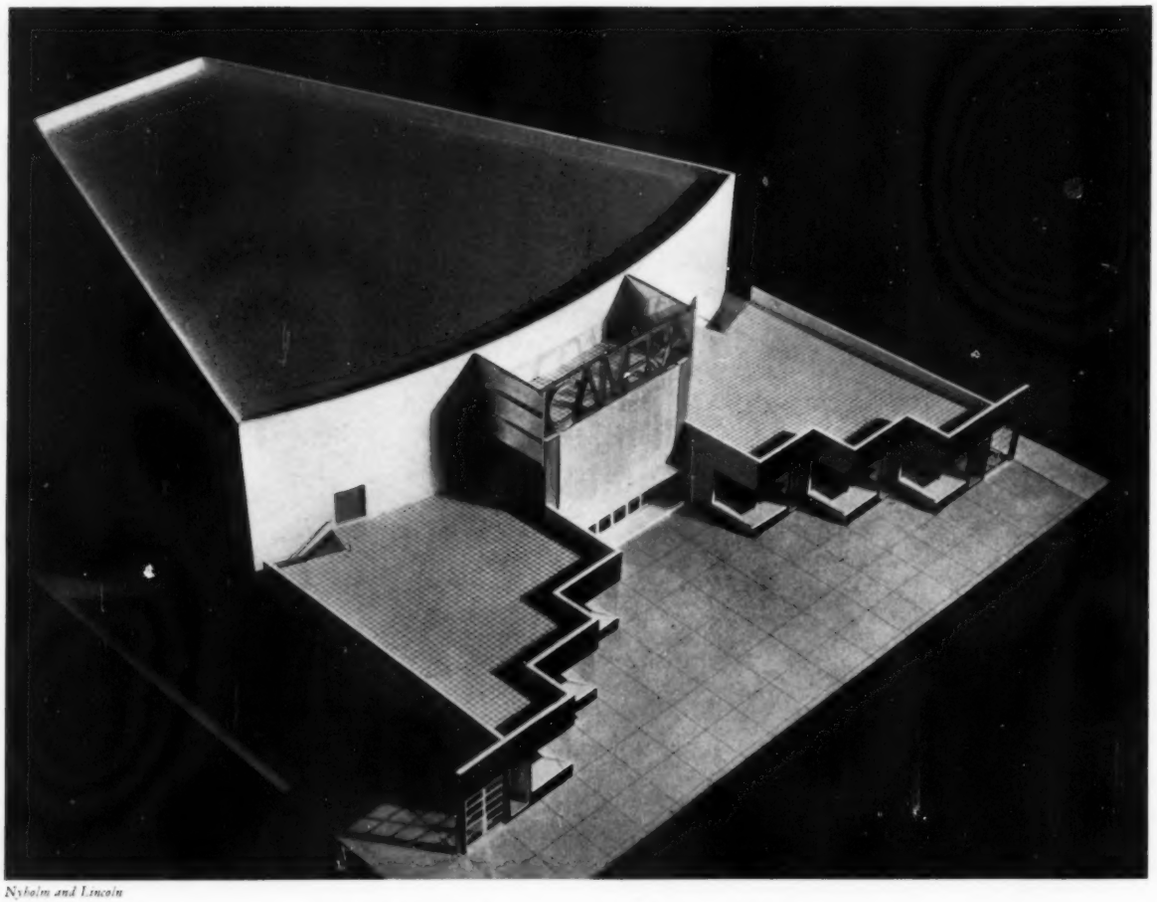
PLAN OF BALCONY FLOOR

A MOVING PICTURE THEATER
WESTCHESTER COUNTY, NEW YORK
JOSEPH URBAN, ARCHITECT

Nyholm and Lincoln

Nyholm and Lincoln

MODEL OF A MOVING PICTURE THEATER
WESTCHESTER COUNTY, NEW YORK
JOSEPH URBAN, ARCHITECT



Nyholm and Lincoln

MODEL OF A MOVING PICTURE THEATER
WESTCHESTER COUNTY, NEW YORK
JOSEPH URBAN, ARCHITECT

portion of the auditorium is carried on girders running normal to the rear wall.

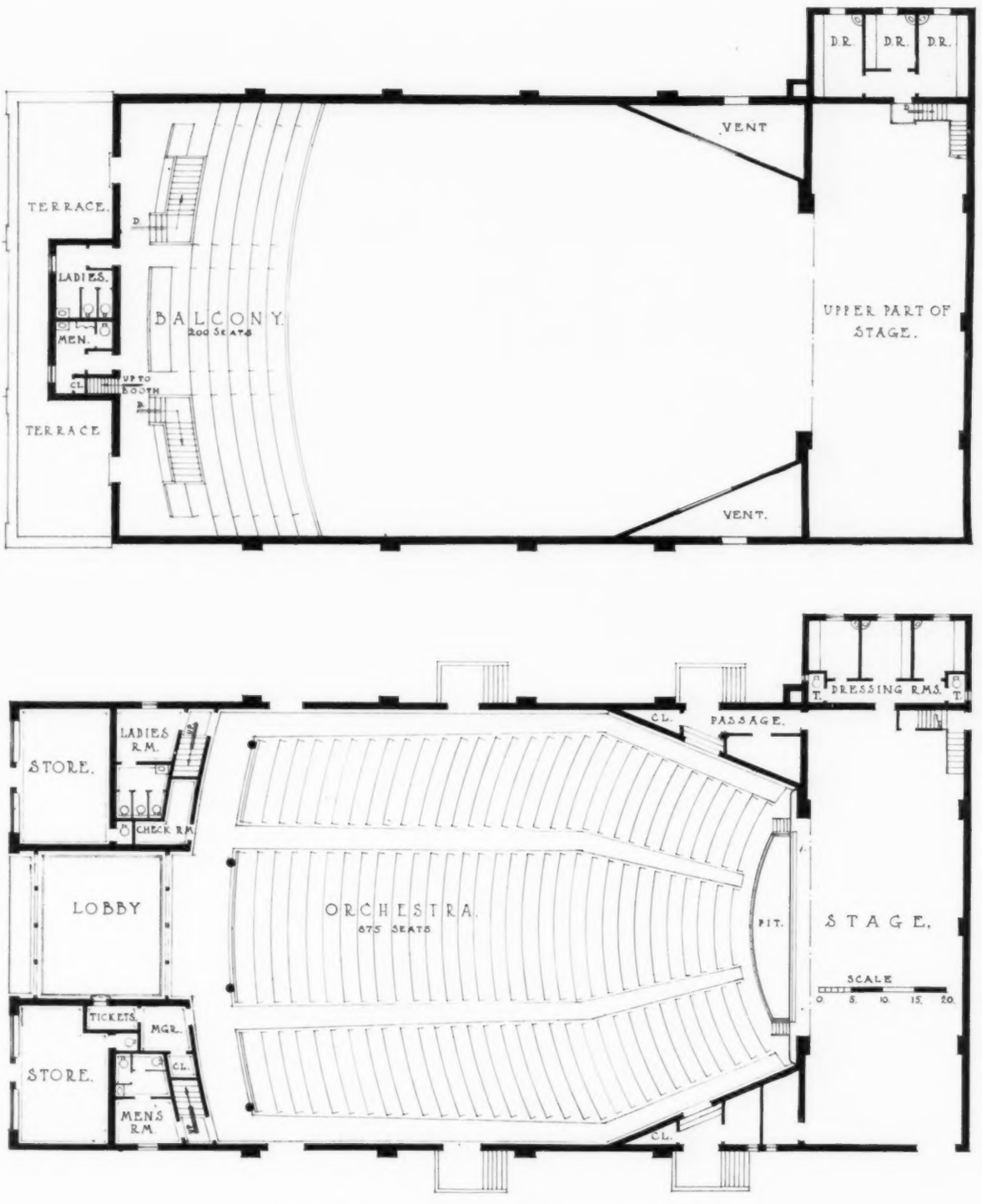
The side wall columns of the auditorium are furred so as to create vertical ventilation ducts, and at the same time to provide vertical dimmer-controlled lighting coves to light the side aisles.

Full utilization of the space underneath the gallery was made by sinking the forward part. A small lounge was thus provided, free from the general circulation, where patrons might await the arrival of their friends.

The usual sound equipment consisting of four loudspeakers is located near the center and rear of the screen. The Grandeur screen is equipped with a curtain operating on a ceiling track which continues over the front of the screen and around the ends. When the performance begins the curtain parts in the middle and disappears around the ends of the screen. When the performance calls for an ordinary screen this curtain may be used to focus the Grandeur screen to the required width.

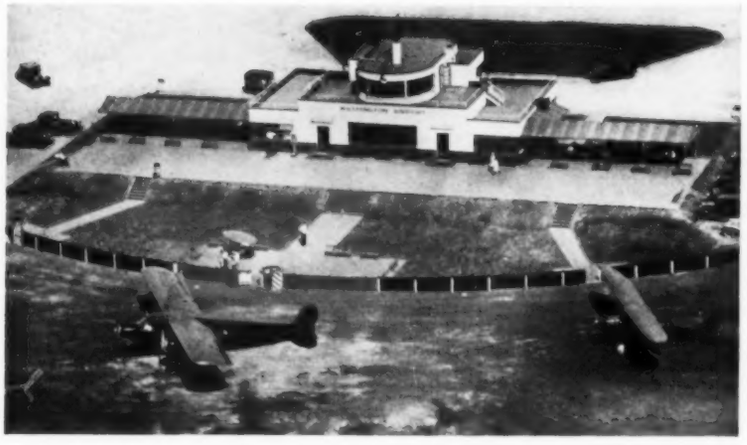
The color scheme of the exterior is black and white stucco and opaque ultramarine blue glass. All metal work is of aluminum.

The wall over the lobby entrance doors is covered with square beveled aluminum sheets and forms a base for the changeable illuminated letters of the current attractions. This is surmounted by the permanent name of the theater worked out in deep aluminum sheet letters with edges outlined with red Neon lights.



THEATER AT SOUTHAMPTON, LONG ISLAND
PAUL P. RUEHL, ARCHITECT

NEW FIELDS FOR ARCHITECTS



AIRPORT AT WASHINGTON, D. C.
L. C. HOLDEN AND R. D. STOTT, ARCHITECTS

FILLING AND SERVICE STATIONS, ROADSIDE REFRESHMENT STANDS, OUTDOOR MARKETS, BUS STATIONS, AIRPLANE HANGARS, WAITING ROOMS, RESTAURANTS AND HOTELS FOR AIRFIELDS OFFER NEW OPPORTUNITIES FOR THE ARCHITECT

WAITING STAND FOR BUS LINE, MUNICH
PROF. VORHOELZER, ARCHITECT

Constructed of reinforced concrete, steel and glass. Equipped with telephone booths.

Increasing traffic on the highways and in the air has created a demand for filling and service stations, roadside inns and refreshment stands, outdoor shopping markets, bus stations, airplane hangars, waiting rooms, restaurants and hotels for airfields. Regional and national chains are now building hundreds of filling stations and roadside stands. Lining the highways, these structures are important factors in the visual character of the landscape. As such they merit the attention of capable designers. The architect can well undertake this work.

If produced in quantity, the design of these low-cost structures can be studied with sufficient detail in the single unit to overcome the usual haphazard commercial quality.

Several competitions have been held to bring forth new solutions, but these well-meaning attempts have not resulted in basic improvements. The sponsors of these competitions have assumed, for the most part, that the specific purposes of these small buildings should be concealed under unrelated and sentimentalized forms. Furthermore, no matter how much improved in looks the individual stands may become, the chaos of the roadside slums will still remain unless the larger problem of highway development is solved.

Townless highways edged with parks are proposed by Benton MacKaye and Lewis Mumford in an article in the August issue of *Harper's Magazine*. The motorist travels at sixty in safety. His hotel is on a side road, at least a mile away from the noises of the long-distance traffic. "A well-equipped restaurant . . . has supplanted the half a dozen

FAMILIAR OBJECTS ALONG THE NATIONAL HIGHWAYS

The visual importance of these haphazard ephemeral structures demands the attention of capable designers.

greasy hot-dog incubators that used to be scattered over the roadside. The food at this particular station is good enough to acquire a local reputation, and often people come out from town for a shore dinner; the restaurant itself, turned away from the road, looks out on to a pleasant vista of fields. . . ."

In the design of individual structures the problem should be approached with a clear definition of intended functions.* From such analyses suitable solutions can be developed.

In addition to good planning, the element of time is an important consideration in the design of temporary business structures. The span of their useful existence is closely tied with rapid changes in methods of transportation and motive power.

To meet the uncertainty of locations and the necessity of experimental changes, the design of these buildings should be based on the following criteria:

Suitability to purpose.
Portability.
Ease of assembly and disassembly.
Ease of maintenance.
Interchangeability of units.
High salvage value.
Low production costs.
Substantial, although not necessarily permanent, construction.

A great variety of materials which are adaptable to these criteria are now on the market. Window-and-wall sections are made in standard units.

Photos by Ewing Galloway

Tubular steel, light-weight metals, stamped insulated metal panels in large easily-assembled sizes, corrugated metal, transite, plastics, rubberized fabrics, awnings and the like are available. Many of these were developed originally for airplane and motor car construction and are particularly applicable to the design of small structures.

Rapid traffic is served. The buildings should therefore be easily seen and recognized through the use of simple structural shapes, color and light.

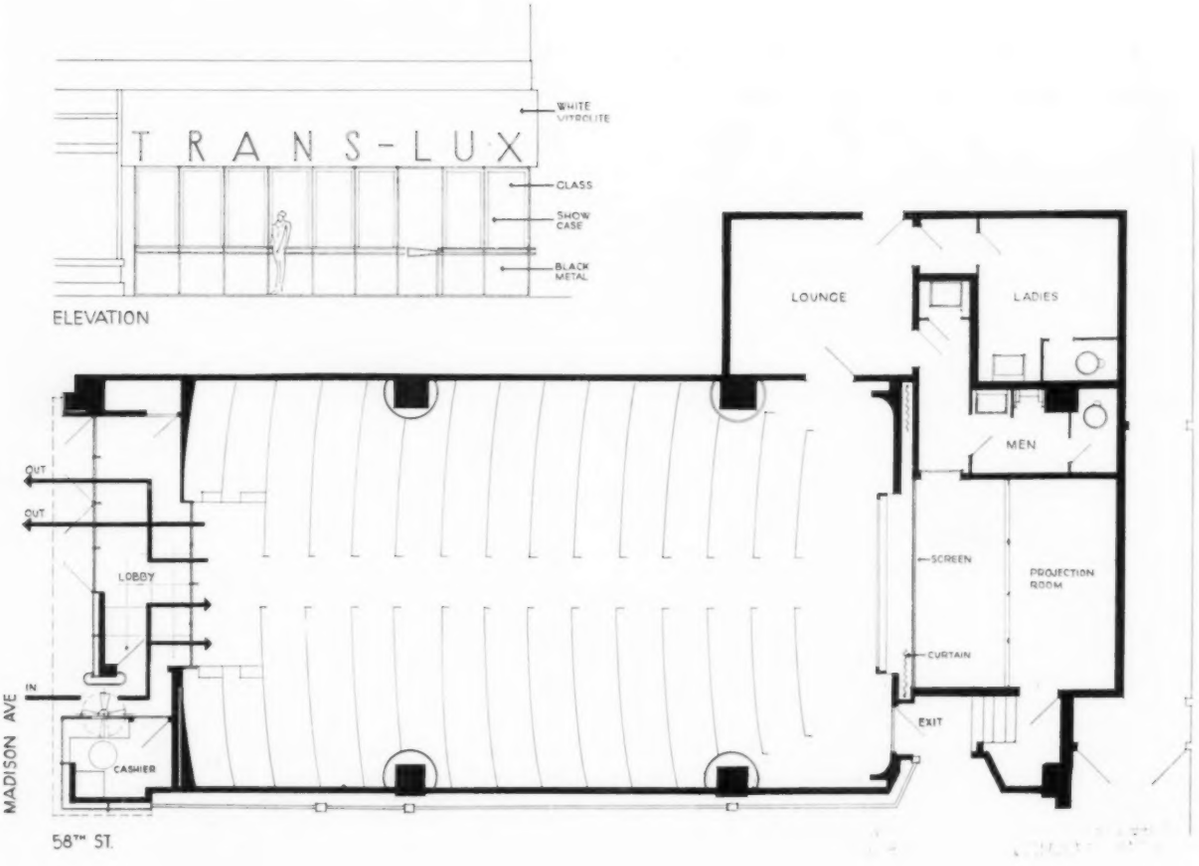
*See *The Gasoline Filling and Service Station* in the June 1930 issue of THE ARCHITECTURAL RECORD.

TRANS-LUX THEATER

AN INNOVATION IN FILM PROJECTION

PRELIMINARY STUDY OF FACADE

HOWE AND LESCAZE, ARCHITECTS

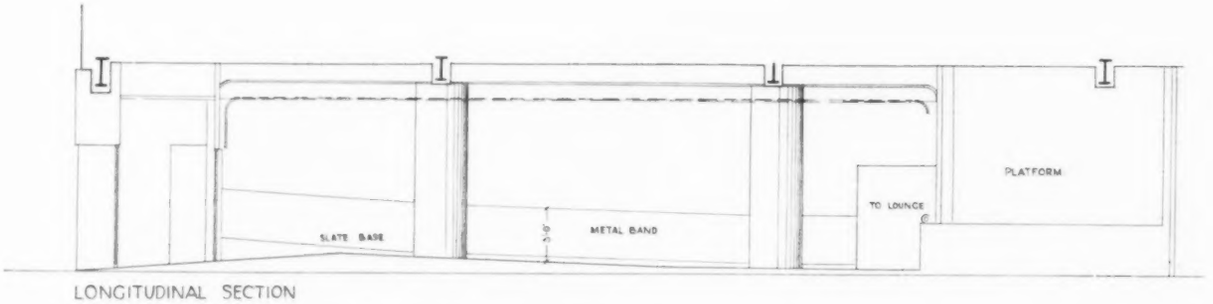


PRELIMINARY STUDY OF FACADE

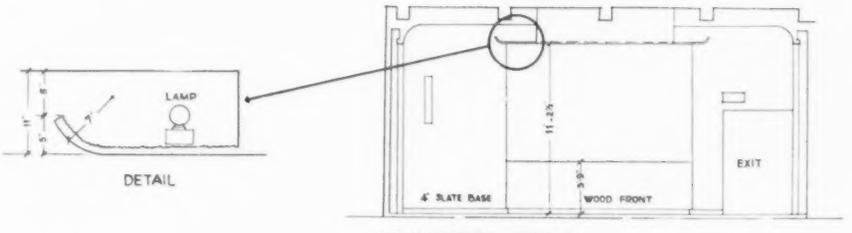
In the Trans-Lux Theaters a patented device permits the film to be projected from behind the screen in an ordinarily lighted room. The screen is treated chemically to prevent the light rays passing through.

The projection room is reduced in size. Accordingly more patrons can be seated. In this theater at 58th Street and Madison Avenue, New York City, ordinary store space was sufficient to furnish 150 to 190 seats.

The interior is designed simply in order to concentrate attention on the screen. In a lighted room ornamentation would be a distraction from the movie. Part of the ceiling is furred down to give space for continuous indirect lighting.

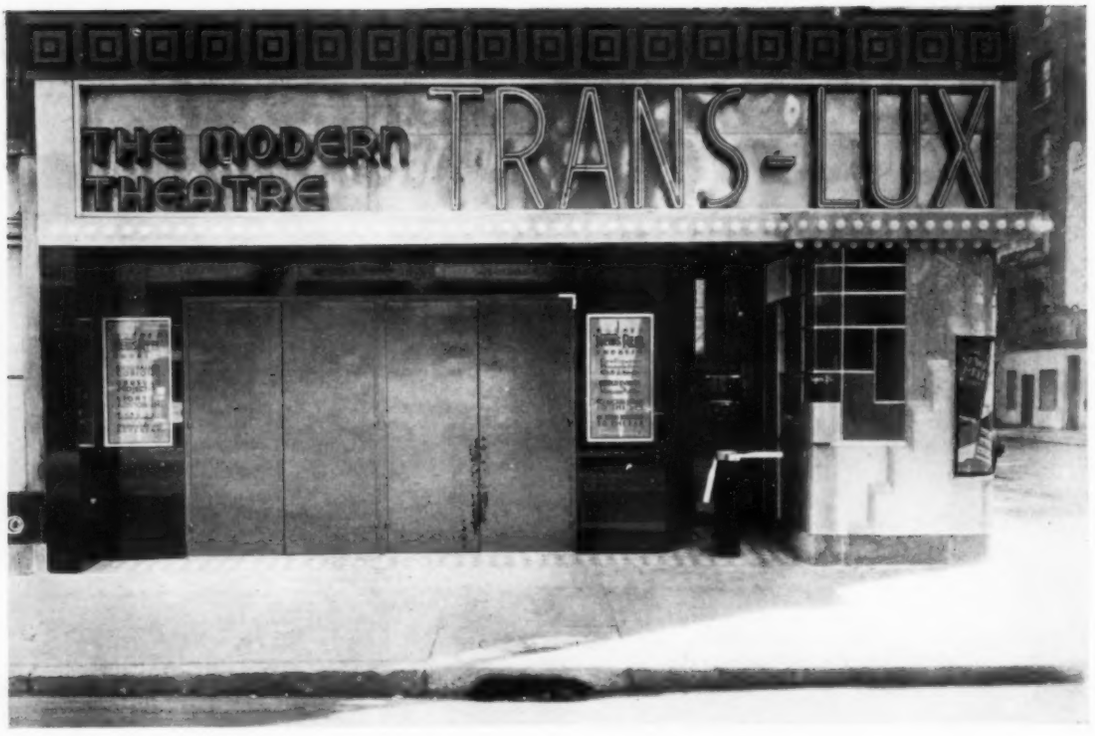


LONGITUDINAL SECTION

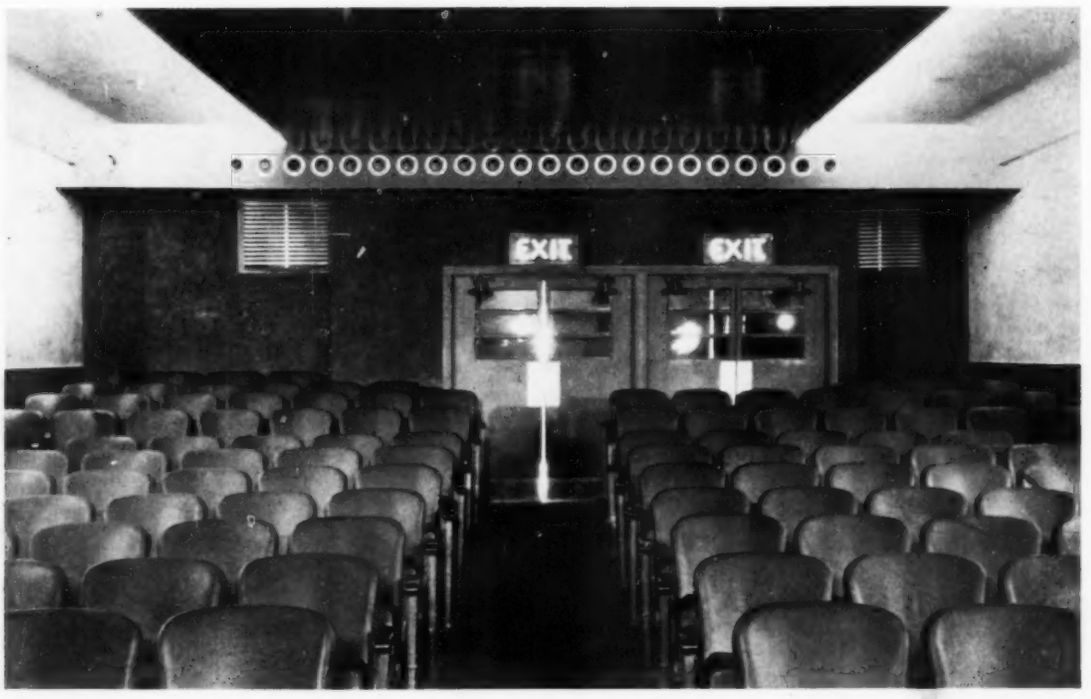


DETAIL

TRANSVERSE SECTION



EXTERIOR BY THOMAS W. LAMB, ARCHITECT



INTERIOR BY HOWE AND LESCAZE, ARCHITECTS
A TRANS-LUX THEATER
58th STREET AND MADISON AVENUE, NEW YORK CITY

NEWS IN BRIEF

ADVICE TO THE YOUNG ARCHITECT

Frank Lloyd Wright, in a recent essay,* outlines his fourteen points concerning ways and means in architecture:

"1. Forget the architectures of the world except as something good in their way and in their time.

"2. Do none of you go into architecture to get a living unless you love architecture as a principle at work, for its own sake—prepared to be as true to it as to your mother, your comrade, or yourself.

"3. Beware of the architectural school except as the exponent of engineering.

"4. Go into the field where you can see the machines and methods at work that make the modern buildings, or stay in construction direct and simple until you can work naturally into building-design from the nature of construction.

"5. Immediately begin to form the habit of thinking 'why' concerning any effects that please or displease you.

"6. Take nothing for granted as beautiful or ugly, but take every building to pieces, and challenge every feature. Learn to distinguish the curious from the beautiful.

"7. Get the habit of analysis—analysis will in time enable synthesis to become your habit of mind.

"8. 'Think in Simples' as my old master used to say—meaning to reduce the whole to its parts in simplest terms, getting back to first principles. Do this in order to proceed from generals to particulars and never confuse or confound them or yourself be confounded by them.

"9. Abandon as poison the American idea of the 'quick turnover.' To get into practice 'half-baked' is to sell out your birthright as an architect for a mess of pottage, or to die pretending to be an architect.

"10. Take time to prepare. Ten years' preparation for preliminaries to architectural practice is little enough for any architect who would rise 'above the belt' in true architectural appreciation or practice.

"11. Then go as far away as possible from home to build your first buildings. The physician can bury his mistakes—but the architect can only advise his client to plant vines.

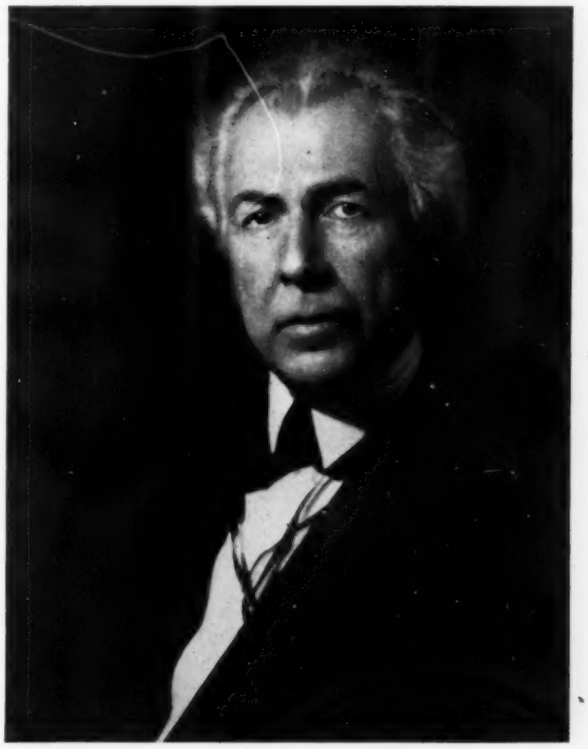
"12. Regard it as just as desirable to build a chicken-house as to build a cathedral. The size of the project means little in art, beyond the money-matter. It is the quality of character that really counts. Character may be large in the little or little in the large.

"13. Enter no architectural competition under any circumstances except as a novice. No competition ever gave to the world anything worth having in architecture. The jury itself is a picked average. The first thing done by the jury is to go through all the designs and throw out the best and the worst ones so, as an average, it can average upon an average. The net result of any competition is an average by the average of averages.

"14. Beware of the shopper for plans. The man who will not grubstake you in prospecting for ideas in his behalf will prove a faithless client.

"It is undesirable to commercialize everything in life just because your lot happens to be cast in the machine-age . . . In architecture the job should find the man and not the man the job. In art the job and the man are mates; neither can be bought or sold to the other . . .

"Respect the masterpiece—it is true reverence to Man. There is no quality so great, none so much needed now."



Price Studios

FRANK LLOYD WRIGHT

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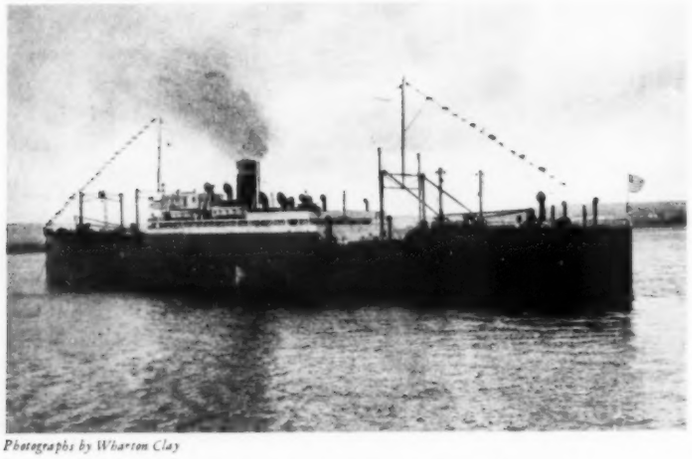
* *Two Lectures on Architecture.* The Art Institute of Chicago, 63 pp. Illus. $.75.

THE PILGRIMAGE OF THE ANCIENS ELEVES TO THE ECOLE DES BEAUX ARTS



Photographs by Wharton Clay

S.S. "AMERICAN BANKER," CHARTERED FOR
THE CRUISE, RENAMED "AMERICAN ARCHITECT"

LOUIS A. WALSH, WATERBURY, CONN.
C. HOWARD WALKER, BOSTON

WILLIAM VAN ALEN, NEW YORK

WALTER H. THOMAS
PHILADELPHIA

TONY SARG
NEW YORK

HUBERT G. RIPLEY
BOSTON

THE MEETING PLACE
IN PARIS

F. V. MURPHY
WASHINGTON

F. C. HIRONS
NEW YORK

JULIAN C. LEVI PRESENTING FLAG
AT ECOLE DES BEAUX ARTS

JAMES W. O'CONNOR AND
ARCHIBALD M. BROWN, NEW YORK

D. PUTNAM BRINLEY, WILLIAM
LAMB, ELY JACQUES KAHN

ALFRED GRANGER, CHICAGO
LOUIS LA BEAUME, ST. LOUIS

WALTER THOMAS AND
GEORGE I. LOVATT, PHILADELPHIA

F. Y. JOANNES
NEW YORK

WILLIAM E. PARSONS
CHICAGO

ELY JACQUES KAHN,
D. PUTNAM BRINLEY
NEW YORK

REQUIEM FOR THE PRIVATE STOCK . . . SINKING THE PRIVATE STOCK
AT THE 10-MILE LIMIT

C. N. WYETH, WASHINGTON
PETER GRIMM, REAL ESTATE BOARD
OF NEW YORK

THE STEAMER RENAMED
FOR THE ARCHITECTS

THE TRIP

On May 21 fifty-three graduates of the *Ecole des Beaux Arts* sailed for Paris. The reason for the trip was the presentation to the *Ecole* of a bronze flagpole designed by Frederic C. Hirons.

Songs, cartoons by Tony Sarg, and the leadership of Kenneth M. Murchison featured the voyage. At Cherbourg the party was met by three French architects, Messrs. Maigrot, Pacon and Mathe, and escorted to Paris on a special train.

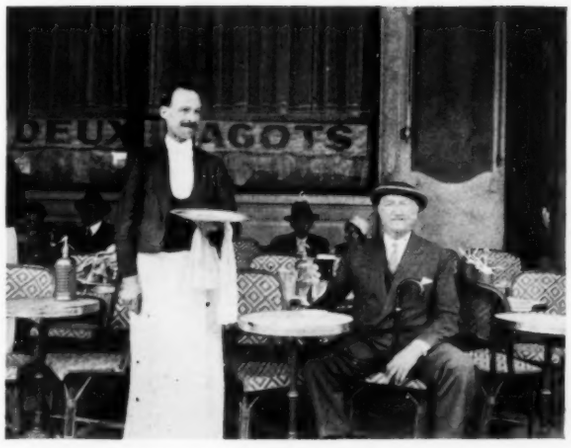
The arrival in Paris was signalized with two brass bands, two 4-horse carryalls and a parade to the Latin Quarter.

The official program began with a trip to Fontainebleau. The following day Ambassador Edge entertained the architects at a garden party.

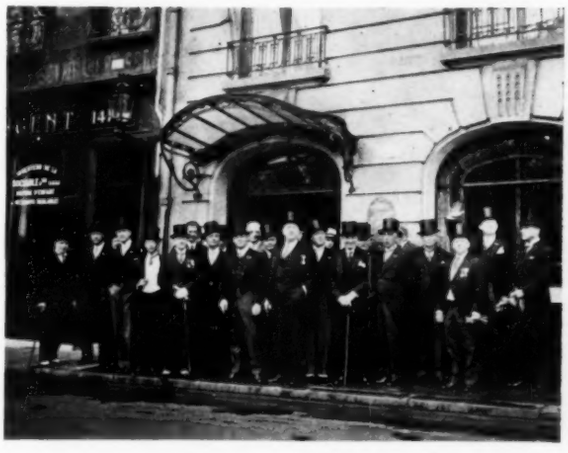
The high point of the trip was the presentation of the monumental flagpole in the courtyard of the *Ecole*. Presentation was made by C. C. Zantzinger and acceptance by Director Albert Besnard. Prof. Sicard and Julian Levi then raised the American and French flags. An inspection of the school followed with the opening of the Spring exhibition, which included the Paris Prize renderings.

A medieval street fair in the garden of Saint Sulpice, a visit to Rheims, student dances at the *ateliers*, the *Folies Bergères*, the Colonial Exposition, dinners and excursions concluded the festivities.

WHARTON CLAY



KENNETH M. MURCHISON
NEW YORK



BEFORE THE CEREMONY

PARIS PRIZE

Carl F. Guenther, student of the Cleveland School of Architecture of Western Reserve University, is the winner of the 24th annual Paris Prize in Architecture. The prize is awarded by the Society of Beaux-Arts architects from the Paris Prize endowment fund of the Lloyd Warren Memorial. It entitles the winner to two and a half years' study at the *Ecole Nationale des Beaux Arts* in Paris.

The problem presented this year was the design of a modern Parthenon, a memorial mausoleum for those who had made notable contributions in any field of endeavor.

UNIVERSITY MEDAL

New York University has been awarded the University medal for work submitted in the competitions of the Beaux-Arts Institute of Design during the past year. The award was made by the *Société des Architectes Diplomés par le Gouvernement Français*.

GARAGES

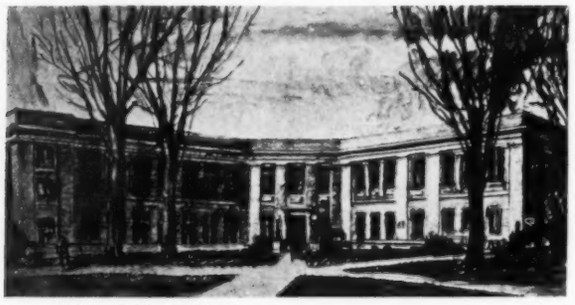
From the bulletin of the Illinois Society of Architects:

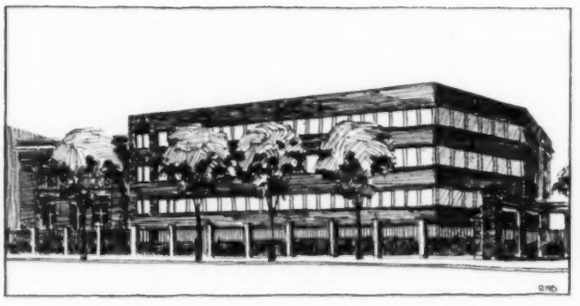
"One of the things difficult to understand is why a man will pay anywhere from a thousand to three thousand dollars for an automobile and forthwith proceed to house it in a garage which cost him perhaps as little as $150. And yet expect the machine to look like a million dollars.

"Twenty-five years ago when that same man was a gay young blood who paid as much as $250 for a saddle horse you can bet your last sou markee that he didn't stable it in any $150 shack. And expect it to continue to make a mile over a country road in four minutes.

"When the average man starts out to market for a garage he looks for the cheapest one to be had. He doesn't consider the service it will give, or how long it will continue so to do. He doesn't much consider appearance. He wants shelter while the nickel still continues to shine. The garages prove this.

"This country spends more annually for garages than it does for school buildings, and does so with a disregard for values received that is wellnigh criminal."





Courtesy of Harvard Alumni Bulletin

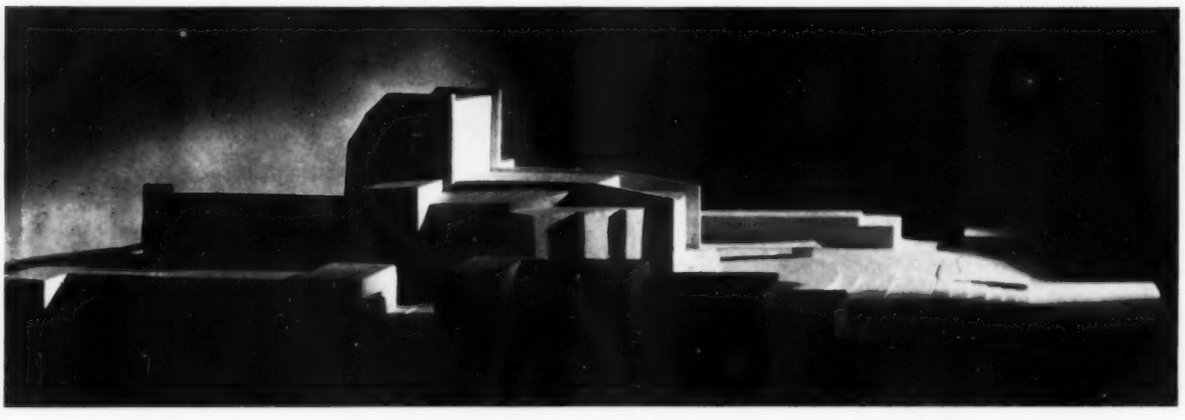
"A QUEEN ANNE FRONT . . . A MARY ANN BACK"

PROPOSED ADDITION TO ROBINSON HALL, HARVARD SCHOOL OF ARCHITECTURE

These sketches of a proposed addition to the Harvard Architectural School have been assailed by Ralph Adams Cram, architect, in an open letter to the *Boston Transcript:*

"I submit this is not architecture. A building should be a consistent unit. To start on one side with one scheme of design and then switch over for the other sides to something radically different is illogical and irrational. It can only suggest a criticism applied during my youth to certain types of architecture then in vogue to the effect that they presented 'a Queen Anne front and a Mary Ann back' . . . ."

The horizontals of glass at the rear of the building, according to Dean G. H. Edgell of the Harvard architectural faculty, who proposed the scheme, are necessary to give perfect lighting to desks in the new drafting rooms. In a reply to Mr. Cram he points out that the drawings are only sketches of an idea to be studied further in order to produce "architecture," and maintains it is no more incongruous to have glass horizontals in the back of an architectural school, where they are needed for drafting rooms, than to have glass verticals in the back of a library, where they are needed for stacks. As for Mary Ann —"I visualize her as an honest little person, attractive even in a homely way, and primarily concerned in doing something useful."



WINNING DESIGN BY ALFRED KASTNER, AN AMERICAN ARCHITECT

UKRAINIAN THEATER AWARDS

First, second and third prizes in the International Competition for the State Theater for Musical Performances in Kharkiv were divided equally among these three entrants:

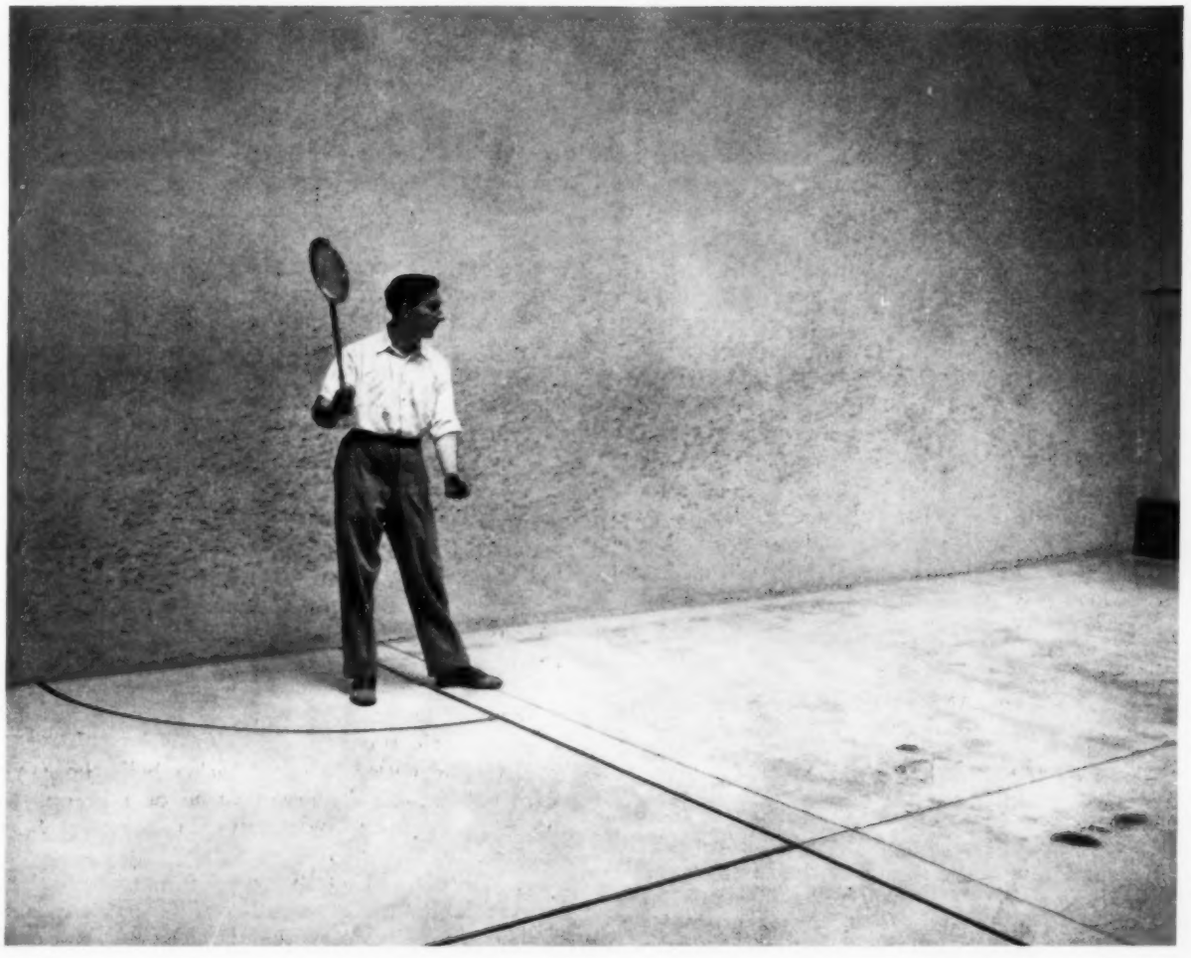
Architect Alfred Kastner, U. S. A., with engineering collaboration from Erich K. Hengerer and Karl V. Mayer. Mr. Kastner is a New York architect.

Architects Associated of Kharkiv, U. S. S. R.: Ju. Afanassiev, V. Kostenko, V. Meller, Movshovitch, R. Fridman, Ja. Steinberg.

Architects Sdenko Strizic and K. Ebecke, Berlin.

Architects Stonorov, U. S. A., and Bosiger, Germany, received sixth prize. Architect Norman Bel Geddes, New York City, was awarded eleventh place.

TECHNICAL NEWS AND RESEARCH



SQUASH RACQUETS COURT, RACQUET CLUB, CHICAGO
REBORI, WENTWORTH, DEWEY AND McCORMICK, INC., ARCHITECTS

DESIGN OF SQUASH COURTS

By HOWARD T. FISHER

Previous Technical News and Research studies:

ESTIMATING THE COST OF SMALL HOUSES
PLANNING THE RETAIL STORE
PLANNING ELEMENTARY CLASSROOMS
REALTY DEVELOPMENTS AND THE ARCHITECT
STADIUM PLANNING AND DESIGN
GYMNASIUM PLANNING

Next Month:

AN EXPERIMENTAL STUDY OF WATERTIGHT CONSTRUCTION IN BRICK MASONRY

By Dr. F. O. Anderegg,
Mellon Institute of Industrial Research

SQUASH COURTS

By HOWARD T. FISHER*

During the last few years there has been a tremendous increase in the playing of court games. Squash racquets is now the most popular winter sport at many men's colleges, especially in the East. More than a thousand undergraduates play in the thirty-odd courts at Harvard. Princeton with only ten courts has five hundred players. Michigan has thirteen courts and Yale has twenty-eight now under construction. In few colleges are the facilities adequate and with the popularity of the game spread by the hundreds of players graduating yearly the demand for courts far exceeds the supply available in most localities.

At the present time the game is also beginning to be played by women to a considerable extent and the future will probably see a corresponding demand for courts at women's colleges and clubs.

DESCRIPTION OF PLAY

Squash Racquets: The game is played by two persons, the floor and portions of all four walls of the court being used. The players stand principally in the back part of the court and in turn hit the ball against the front wall with or without touching the floor or the side walls. A point is lost when the ball hits the tell-tale, the ceiling or the space above the top of the playing walls. Long handled bats, somewhat similar to tennis rackets, are used by the players to hit the ball which is small and of fairly stiff rubber.

A less common form of this game is played by four persons, two on a side, in a "doubles court" which is about twice the area of the "singles court."

Squash Tennis: The game is, in general, similar to squash racquets except that the bat and ball are both more nearly of the type used in tennis. Owing to the livelier ball there is greater speed in the strokes, but the players tend to cover less of the court.

This game is played much less extensively than squash racquets and has been losing ground in recent years. Its principal stronghold is New York City. With the change in court standards making it possible to play the game in the same court used for squash racquets it may again increase in popularity.

Advantages of the Game:

1. An active player can get a vigorous workout in an extremely short length of time, a half hour period usually being sufficient to satisfy the most strenuous player. This makes it possible for students to play between classes and for office workers to play during the lunch hour or immediately after work.

2. Less active or older persons enjoy the game equally as it need not be played any more strenuously than desired.

3. Unlike tennis and many other games little skill is required for its enjoyment. Beginners enjoy the game from the start.

4. Unlike volley ball and basket ball, the game does not require the organization of a group. A player needs only a single partner in order to arrange a game.

5. While traditionally more of a winter game squash can be played equally well the year round. This is especially desirable in large cities where convenient outdoor recreation is usually not available. Even in the country a cool squash court may prove popular in hot weather.

6. Since natural light and direct ventilation are not required courts can be economically built below grade or in the central portions of large buildings.

For the above reasons the inclusion of squash courts should be seriously considered by the architect in connection not only with purely athletic buildings but with the following:

1. Club buildings and Y. M. C. A.'s.
2. Community centers.
3. Hotels and apartment buildings.
4. School and college dormitories.
5. Private houses.

In each of the new dormitories at Harvard University squash courts are provided below grade for the sole use of occupants of the building. In the Shelton Hotel in New York squash courts are provided at the penthouse level. The inclusion of such

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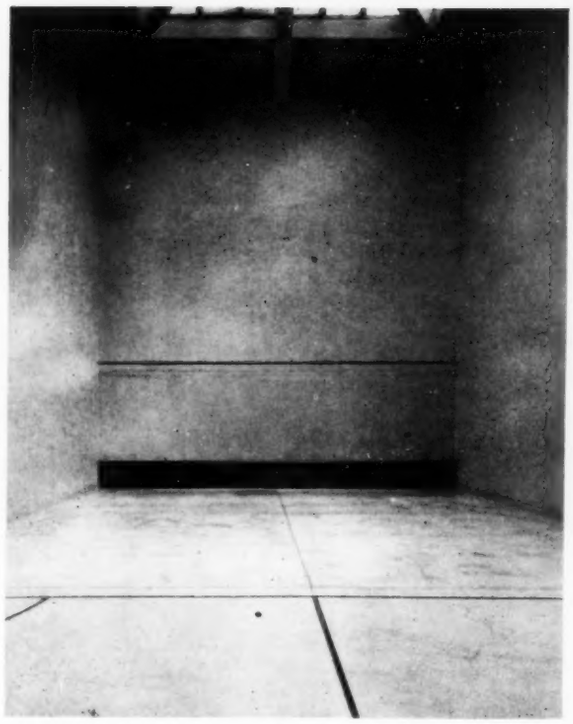
* This study embodies the results of the recent conferences between the United States Squash Racquets Association and the National Squash Tennis Association which culminated on March 7, 1931, in the establishment of a single standard court for both the games of squash racquets and squash tennis.

The writer wishes to acknowledge the invaluable assistance in the preparation of this study of Mr. Ralph A. Powers and Mr. Adrian W. Smith, President and Secretary-Treasurer respectively of the United States Squash Racquets Association.

The present standard squash court specifications of necessity form the basis for this article. Material has also been freely drawn from the previous specifications of both the United States Squash Racquets Association and the National Squash Tennis Association.



SQUASH RACQUETS COURT, RACQUET CLUB, CHICAGO
REBORI, WENTWORTH, DEWEY AND McCORMICK, INC., ARCHITECTS

facilities in apartment house developments would undoubtedly assist in attracting tenants.

In colleges it is best to provide courts as near as possible to the students' rooms, preferably in the same building. Not only will courts so built be used more, but it will be possible for the student to dress in his own room and reach the courts without going out of doors.

In connection with Y. M. C. A.'s it has in the past been customary to build handball courts but with the spread of squash in the colleges there is an increased demand for squash courts. The standard squash court takes only about half as much floor area as the standard handball court and requires considerably less height. Furthermore, while it is impossible to play squash in a standard handball court, a fairly satisfactory game of handball can be played in a standard squash court if the proper provisions are made (see below under *Tell-Tale*).

THE COURT

The architect should make every effort to use the exact dimensions and construction specified in order that courts may be "standard." A uniformity of courts is highly desirable to encourage the development of the game, non-standard courts being a never-ending source of dissatisfaction.

The court dimensions are all absolutely fixed and may in no case be altered without more or less seriously affecting the game. A variation of only a few inches in the width of the court, for example, might be quite noticeable.

Dimensions of Court: The inside finished dimensions of the playing surfaces of a standard squash court should be:

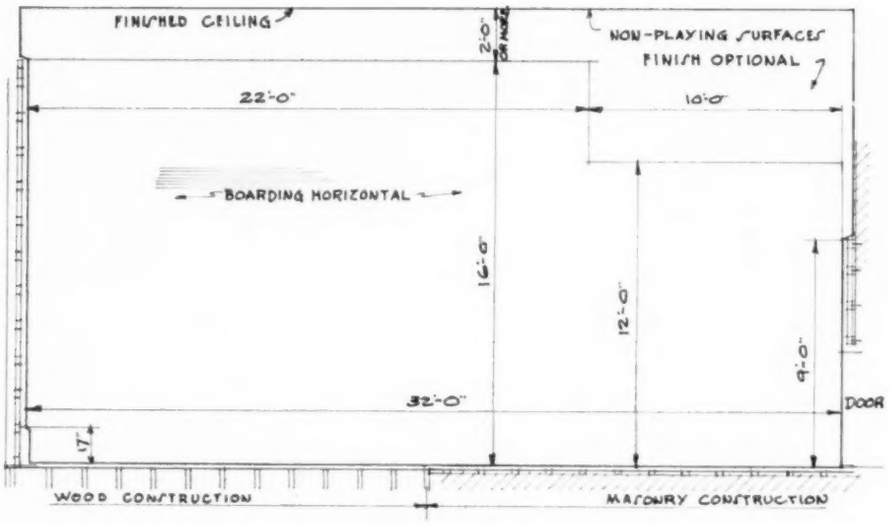
Width	18′–6″
Length	32′–0″
Height	
1. Front wall	16′–0″
2. Side walls	
For a distance of 22′–0″ back from the front wall	16′–0″
For a distance of 10′–0″ forward from the back wall	12′–0″
3. Back wall	9′–0″

The ceiling should be 18′–0″ or more in height to permit the use of the indirect lighting fixtures which have been adopted as standard.

CONSTRUCTION

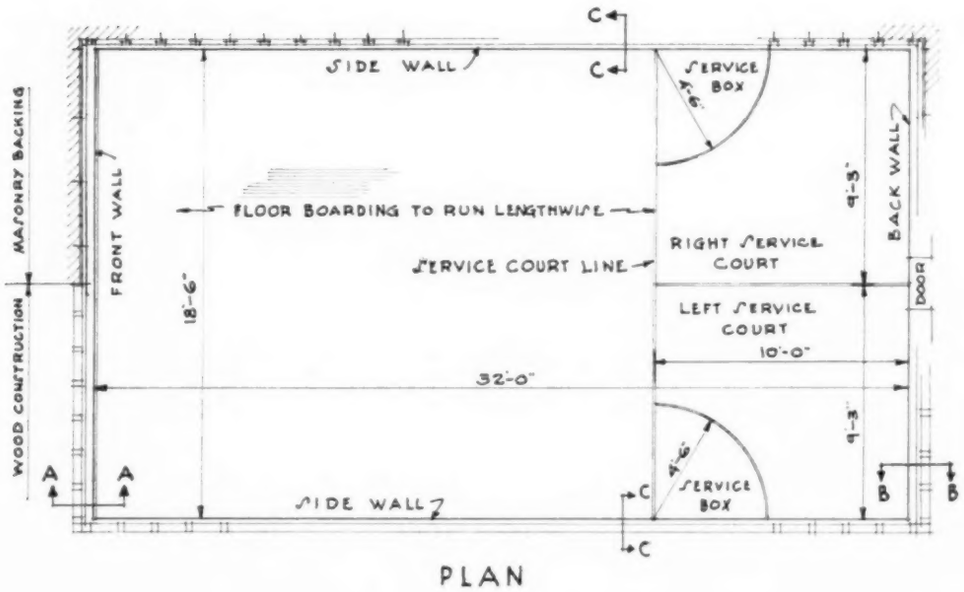
Floor:

Finished floor: 1½″ x 25/32″ tongued and grooved, air dried, clear, hard maple flooring (long lengths) running parallel with sides of court, laid on 1½″ face, secret nailed.



ELEVATION OF SIDE WALLS

DIMENSIONS OF COURT

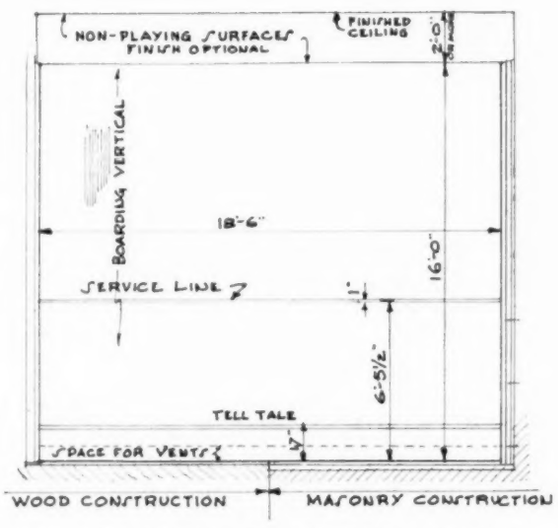


PLAN

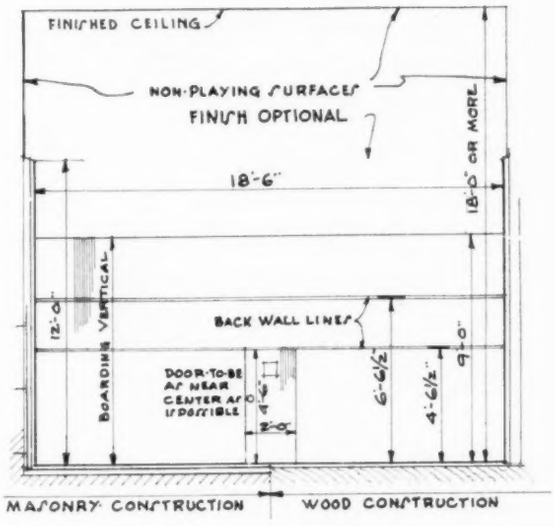
Subfloor: 2½" x 13/16", tongued and grooved sheathing, preferably fir, spruce or yellow pine, running diagonally, laid on 2½" face, thoroughly nailed.
Felt: A layer of gray unsaturated builder's deadening felt approximately ⅛" thick and weighing not less than 1½ lb. to a square yard should be laid with butted joints between the two floors and at right angles to the finished floor. The floor is to be laid over joists (in a building of wooden construction) or over sleepers (in a building of masonry construction) spaced not more than 16" on centers. For proper floor resiliency the space between the sleepers or joists should be left so that no solid material comes in contact with the underside of the subfloor. Ventilation under the floor is desirable to prevent possible warping. Joists when supporting the floor should be designed for stiffness.

Front and Back Walls:

Finished wall: 1" x 2¾", tongued and grooved on 2¾" faces, air dried, clear, hard maple, running vertically, laid on 1" edge, secret nailed. Toe-screwing every sixth strip with 3½" screws is desirable. Splines may be substituted for tongued and grooved construction if desired.
Sheathing: Same as specified for subfloor.
Felt: Same as specified for floor.



ELEVATION OF FRONT WALL



ELEVATION OF BACK WALL

Side Walls: Same construction as specified for floor. Boarding to run horizontally.

In buildings of masonry construction the wood walls should be fastened to 2″ x 4″ furring strips laid flat and spaced not more than 16″ on centers. These furring strips should be held free from direct contact with the masonry wall by means of washers and securely fastened by means of bolts set in the wall at the time it is laid up. The bolts should be spaced not more than 30″ on centers and staggered so that each bolt in one furring strip comes opposite the center of the space between two bolts in each of the adjacent furring strips. The end of the bolt and the nut should be countersunk. The furring strips should run at right angles to the finished boarding.

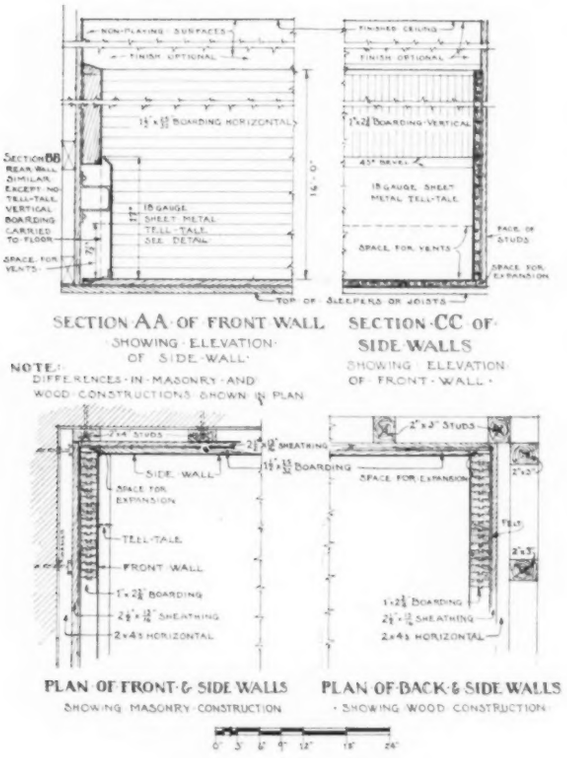
In a building of wooden construction the wood walls should be fastened to 3″ x 4″ studs spaced not more than 16″ on centers. Where these studs have to be set vertically for the support of the building horizontal 2″ x 4″ furring strips should be nailed to them not more than 16″ on centers to receive the vertical boarding of the front and back walls. (If this takes too much space 2″ x 4″ pieces may be inserted horizontally between the studs.)

The floor and walls should be planed, traversed, scraped, and sandpapered to a true smooth uniform surface which will not show the tool marks.

The angle between the wall and floor should be a perfect 90° angle without cove molding or other projection.

When a court is constructed in a building where it will be sure to remain absolutely dry, well seasoned lumber should be used. When a court is constructed as an outbuilding or when it is apt to be subjected to any dampness or to unusually damp air, as on the sea shore, the tendency is for the wood to swell and therefore it is inadvisable to use lumber that is too dry. At the time of its placing the lumber should be, as nearly as possible, in the same condition in which it is to remain. In any case, provision should always be made for possible swelling by arranging for an expansion joint at all corners. This is especially necessary for the floor which may become flooded through a leak. Every effort should be made to keep a court as dry as possible. Where the wood lining is applied against an outside wall that wall should be well constructed and if of masonry should preferably be waterproofed. Where a court is built in a basement perfect waterproofing is of course of the first importance.

DATA FOR ESTIMATING	
PLAYING SURFACES	
AREA OF FLOOR	592. SQ. FT.
" " 2 SIDE WALLS	944. " "
" " FLOOR & SIDE WALLS	1536. " "
" " FRONT WALL	270.1 " "
" " BACK WALL	166.5 " "
" " FRONT & BACK WALL	436.6 " "
TOTAL AREA OF PLAYING SURFACES	1972.6 " "
NON-PLAYING SURFACES	
AREA OF CEILING	592. SQ. FT.
" " SPACE ABOVE FRONT WALL	37. " "
" " " " SIDE WALLS	208. " "
" " " " BACK WALL	166.5 " "
TOTAL AREA OF SPACES ABOVE WALLS	411.5 " "
TOTAL AREA OF NON-PLAYING SURFACES	1003.5 " "
TOTAL AREA OF ALL SURFACES	2976.1 " "
VOLUME OF ENTIRE COURT	10,656 CU. FT.



CONSTRUCTION DETAILS

VARIATIONS FROM STANDARD

The United States Squash Racquets Association is strongly opposed to any deviation from the construction of the playing walls specified above. This applies to the substitution of more expensive and possibly superior materials as well as to the substitution of less costly materials. It is therefore inadvisable to purchase special or patented court linings offered by concerns who claim that a superior resiliency or some other desirable quality is procured. It is the object of the standard specifications to produce as great a uniformity in courts as possible and greater resiliency or any other special feature is undesirable.

The architect may, however, find himself called upon to design a court for a client to whom economy is all important or at least more important than conformity with the official standard. It therefore seems advisable to discuss here certain modifications which, while not standard, may be made without materially changing the game.

The back wall may be made of the same construction as specified for the side walls and floor. While less desirable for squash tennis this change will not be detrimental to squash racquets—as witnessed by the fact that the previous standard called for this construction. Where it is known in advance that the court will probably be used solely for squash racquets the back wall need not be built higher than 6′–6″.

Flooring with 2¼″ face may be used, and the side walls which are least subject to severe pounding may be made of 2⅜″ x ⅞″ edge grain, tongued and grooved yellow pine flooring, "B" grade, over ⅞″ x 3″ square edge sheathing—as was called for in previous specifications.

Plaster Walls: Previous to 1928 no particular material was specified for court construction and many courts were built with plaster or concrete walls and cement floors, as well as various compositions. There was considerable dissatisfaction with the great diversity of courts resulting from this situation and after a thorough study of the problem the United States Squash Racquets Association adopted the all wooden court as "standard."

In addition to the fact that there were already more wooden courts in existence the principal reasons for this choice were as follows: Wooden floors are far easier on the feet of the players. The wooden court is less subject to condensation. Its surface can be brought to a more uniformly smooth finish than is possible with plaster. Plaster, unless unusually well applied on a very good base, has a tendency to chip and peel off with time. With the adoption of the new standard court for both squash tennis and squash racquets the objection to plaster becomes even greater, since it is impossible to play squash tennis with any success in plaster courts.

In case it should be necessary to build plaster courts because of greater economy under certain circumstances, these factors should be considered: As cement is extremely hard on the feet of players the floor of a court should be made of wood if possible, even where the walls are of plaster. Where the walls are of plaster and the floor is of wood, the plaster should be stopped at the floor line by a piece of Kalman trim or similar square-edged plaster stop, and the floor should be laid after the plaster is dry, to fit under the Kalman trim leaving an expansion joint all around. The angle between the plaster wall and the wooden floor should be a perfect 90° angle without any cove or other projection. Owing to the tendency to peel an extra good plaster should be used, applied over a solid base affording good bond. Plaster on lath without masonry backing would not stand the severe pounding. Portland cement plaster finished with a coat of white Portland cement mixed with white sand is probably the best, but it is expensive and is apt to be subject to an excessive number of hair cracks. Three coats of Keene's cement, the last coat made with white sand, is probably the most satisfactory inexpensive finish. Woven wire lath is sometimes stapled to the wall to reinforce the plaster and to insure a good bond with the wall. The surface of the plaster should be very smoothly troweled. It should not be painted, as the

plaster surface will stay clean longer and can be scrubbed when it becomes dirty.

Doors in plaster courts present unusual difficulties. Where the expense must be kept to a minimum a heavy flush panel wooden door is probably the best solution. The plaster edges around the door can be reinforced with Kalman trim. If possible the door should present a plaster surface the same as the wall so as to produce a uniform bounce. In order to accomplish this a heavy steel door thick enough to hold furring tile with plaster should be constructed in detail similar to a vault door. This should be made so as to fit accurately and absolutely flush with the finished wall.

NON-PLAYING SURFACES

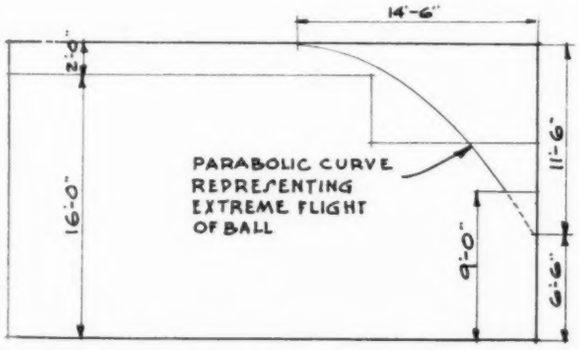
The area above the top of the walls and below the ceiling may be finished in any way desired since the ball is no longer in play after hitting this portion of the court. This space may be left rough, plastered, used for vents or completely screened for ventilation. The space above the back wall and the adjacent ten feet of the side walls may be used for a balcony.

Where there is a ledge resulting from a setback at the top of the playing walls it should be built slightly sloping so as to cause any balls that might land there to roll back into the court.

The playing walls may be built higher than specified under *Dimensions* if desired, but if so the playing surface should be defined by a 1″ red line the lower edge of which should correspond with the dimensions given.

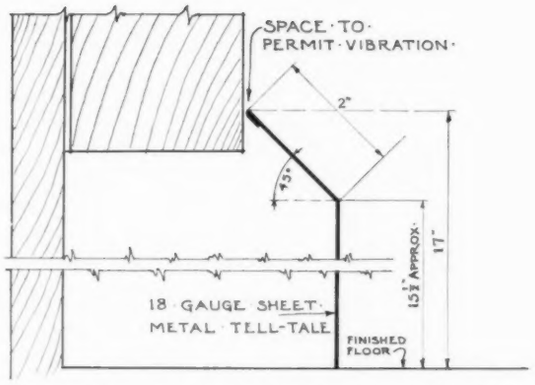
The treatment of the ceiling is also optional. A suitable surface should, however, be provided to reflect the light from the indirect fixtures. To lessen the noise of play the ceiling and the space above the top of the walls might well be covered with a sound-absorbing material.

In the accompanying longitudinal section a parabolic curve is shown in the upper rear portion of the court. This curve represents the extreme theoretical

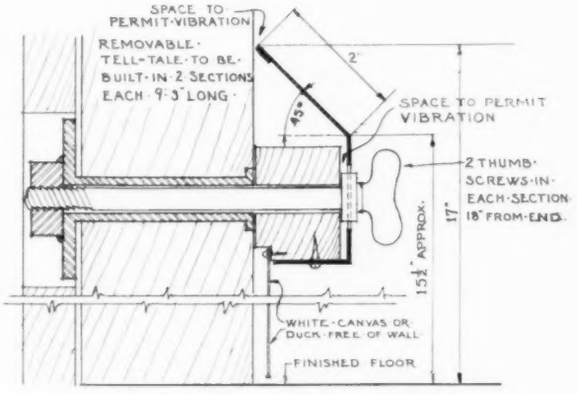


LONGITUDINAL SECTION

EXTREME FLIGHT OF FAIR BALL DETERMINES CEILING CLEARANCE



DETAIL OF STANDARD TELL-TALE



DETAIL OF REMOVABLE TELL-TALE

flight of a fair ball. Any ball which would pass beyond this line would of necessity be out. The ceiling or roof may therefore be carried down on or above this line if so desired, or objects such as lights, balconies and fans, may be allowed to project into the space above this parabolic curve, provided they do not interfere with the proper illumination of the court. Nothing, however, should project below the top of the back wall, and nothing should be allowed to project into the court elsewhere than in this space.

TELL-TALE

Most of the fast shots in squash are low and to assist in determining when these shots are "out" a metal tell-tale is provided across the front of the court. This is made of 18-gauge sheet metal and so arranged that it will give a ringing sound when hit. The top edge is 17″ above the floor and is placed just free from the wall to prevent vibration. There is then a 2″ bevel at 45°, the main body of the tell-tale being approximately 15½″ high and 1½″ from the wall. Vents may be placed in the tell-tale, but if possible the distance from the top of the registers to the floor

should not be more than 7½″. The special front wall construction need not be carried down below the top of the tell-tale.

Frequently it is desirable to arrange courts so that they may be used for handball as well as for squash. To accomplish this the tell-tale must be made removable and the finished front wall must be carried to the floor. As the standard tell-tale would be too bulky to handle easily a special light tell-tale can be substituted. This should be made in two pieces, each 9′–3″ long. The cloth shown in the detail should be hung just free from the wall so that it will move visibly when hit. It should not be hung too far from the wall as the ball will then not bounce back and the player will have to walk to the front of the court to recover it.

MEANS OF ENTRANCE

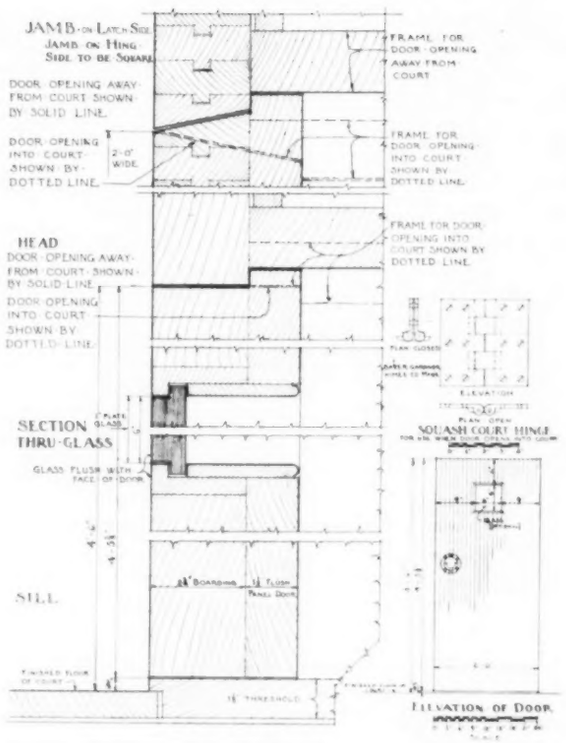
Door: The standard specifications call for a door 4′–6″ high by 2′–0″ wide placed as nearly as possible in the center of the back wall. In this position it will be least in the path of the ball and hence least objectionable. If impossible to build it in this position it may be placed anywhere else in the back or side walls, but under no condition should it be placed in the front wall.

The door should have its face finished with the same kind and thickness of material as the wall in which it is placed. When closed it should be absolutely flush with the wall and should fit as accurately as possible with not more than a ⅛″ wide crack. Owing to the tendency to loosen with time the door should be put together unusually well; it is advisable to glue the strips and use screws rather than nails as far as possible. It is suggested that a 1½″ solid flush panel door be used as a base to which the surface material could be applied.

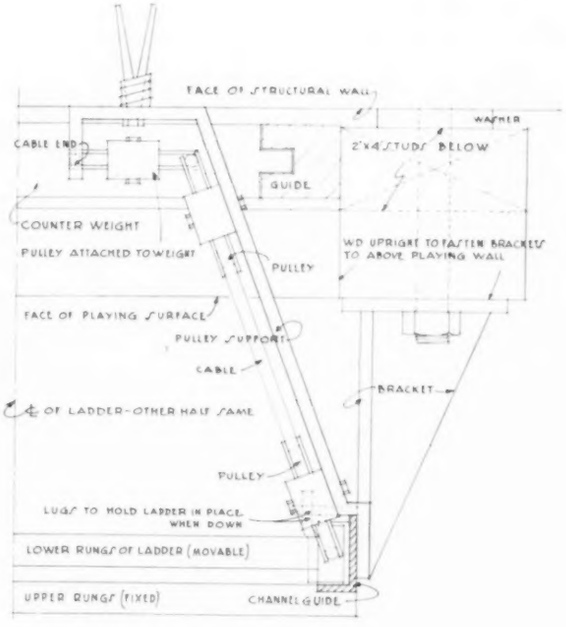
If possible the door should swing away from the court so as to eliminate the necessity of providing special hinges. Where the door must for some reason swing into the court either invisible hinges* or flush hinges specially made for squash court doors† should be used. The latch for the door should be absolutely flush so that the ball may hit it without being deflected. Special latches are made for this purpose.†

It is usually advisable to provide a small flush glass panel about 6″ square and ½″ to 1″ thick in the top of the door. This makes it possible always to tell when a court is in use and prevents persons from entering a court during a lull in the game. It also has the advantage, where no balcony is provided, of affording a means whereby the casual visitor may get some idea of how the game is played.

* Made by Soss Manufacturing Co., Brooklyn, N. Y.
† Made by Bayer-Gardner-Himes Co., New York, N. Y.



DETAILS OF DOOR



DETAIL PLAN OF ONE HALF OF SLIDING LADDER
SCALE

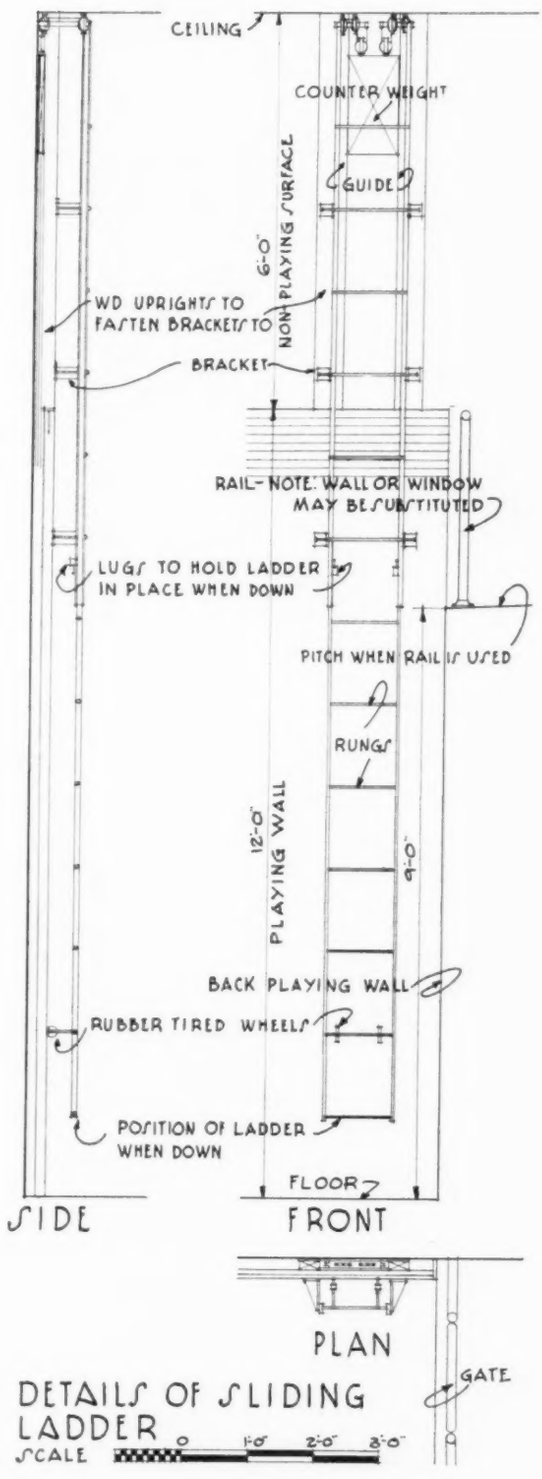
Ladder: Where a court is built in the basement of a building with its floor at a lower level than the regular basement floor, a counterbalanced ladder may be used in place of a door. This greatly simplifies construction. It also has the great advantage of completely uninterrupted walls, the ladder during play being shoved up even with the top of the back wall where it will not interfere with the game. To reach the bottom of the ladder in raising or lowering it a hooked rod, similar to a window pole, may be used. This can be laid on the floor in front of the tell-tale during play.

A counterbalanced ladder may also be used to advantage where the dressing room or gallery is located on the floor level above that of the court floor and where it is difficult to provide entrance or corridor space at the level of the court floor. The door used to reach the top of the ladder should have glass panels in both top and bottom and on the entering side a double latch requiring the simultaneous use of both hands to prevent all possibility of its being opened by mistake.

Trapdoor: If the architect faces the necessity of gaining access to a court located at the top of a building and there is insufficient space to provide a door in the side of the court, he can resort to the use of a trapdoor in the court floor. This was done some years ago in a Chicago club. The trapdoor should be finished with the same material as the floor, the same considerations entering as noted under doors. To be the least objectionable it should be located at the front of the court as near the tell-tale as possible and in the center if possible. It can extend as far as necessary across the front of the court, but should be kept narrow so as not to project into the court any further from the tell-tale than necessary. In this position it will offer little interference, and if properly counterbalanced should be easy to operate.

GALLERY

Owing to the requirements of squash it is very difficult to construct a really satisfactory spectators' gallery, and it is impossible to construct one of great capacity. However, in every group of courts it is highly desirable that there be at least one or two equipped with as large a gallery as possible for exhibition and tournament purposes. The rest of the courts may be left either without any galleries or with narrow ones just deep enough to accommodate a single row of spectators. In groups of three, four, or more courts it is probably just as well to leave one or two courts without any galleries at all in order to afford a place where beginners may practice without the embarrassment of being watched by casual onlookers.



A COUNTERBALANCED LADDER CAN BE SHOVED UP EVEN WITH TOP OF BACK WALL WHERE IT WILL NOT INTERFERE WITH THE GAME

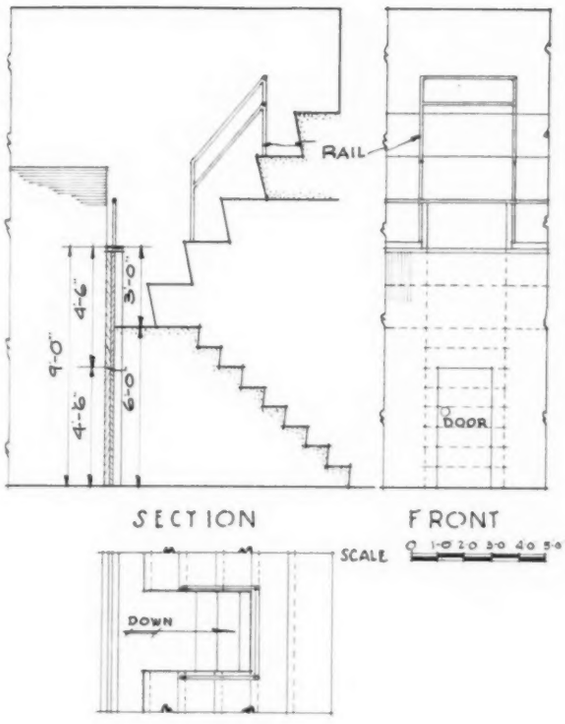
To seat as large a number of persons as possible the gallery should start at a point 3′–0″ below the top of the back wall, and should slope back at a steep angle. Long benches rather than separate seats should be provided so that the feet of the spectators sitting on one row may fit between the spectators sitting on the row in front. In this way many more persons may be accommodated than if regular seats are used. In case an unusually large gallery is desired the ceiling can be raised as much as may be required. Also, in view of the fact that the side walls are lowered to 12′–0″ for a distance of 10′–0″ out from the back wall it would be possible to construct a gallery with the upper rows wider than the court or running around on the sides of the court. While the spectators sitting in the side seats would not get as good a view as those in the center they would still be able to see a great deal of the game.

Where the dressing room is located on the floor level above that of the court the entrance to the gallery can be at the level of the dressing room if so desired. This will eliminate the necessity of providing the lower entrance to the gallery, thus making it possible to accommodate a few additional spectators.

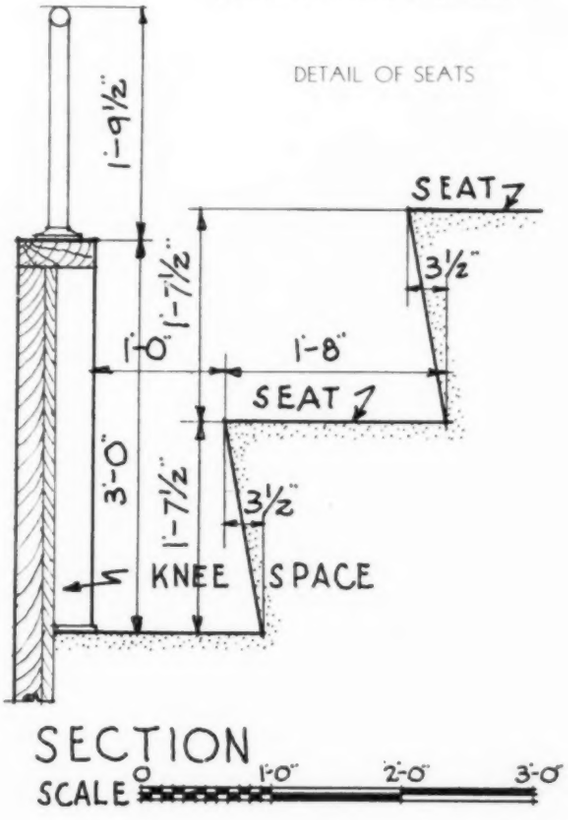
Where a narrow gallery is desired and there is insufficient space back of the court, it may be projected partly or wholly into the court provided it is placed entirely above the parabolic curve already referred to. Where there is lack of space a gallery for one row of spectators need not be more than 2′–8″ wide in the clear. In connection with such a gallery it should be understood that the farther it projects into the court beyond the back wall the less satisfactory it will be for viewing the game since many of the shots will take place below the gallery and hence partly out of the sight of the spectators.

A gallery built with its floor at or above the 9′–0″ point should have an open railing. The floor and all the seats should slope slightly so that the ball if knocked into the gallery will roll back of its own accord into the court. Where the floor is below the 9′–0″ point the ball cannot roll back because of the back wall, and this sloping is unnecessary. In this case it is advisable to provide a cloth netting sufficiently fine to stop a $1\frac{3}{4}$″ ball and arranged on a spring roller so that it can be pulled down in front of the gallery when it is not in use.

Where the dressing room can be located at the rear of the courts and on the floor level above that of the courts glass windows looking into the courts from the dressing room may be provided. This is a very attractive arrangement as it permits persons lounging in the dressing rooms to watch others at play without the necessity of going to a regular unheated gallery. This arrangement should not be employed where there is any possibility that the courts may be used by women.



DETAIL OF TYPICAL GALLERY



Where as large a gallery as possible is desired for a court to be used solely for squash racquets the back wall need not be carried higher than 6′–6″. This will permit the entire gallery to be constructed 2′–6″ lower and will give a better view of the game as well as an increased gallery capacity. With this arrangement there will be insufficient head-room under the gallery to permit use of the standard door, and so it is usual to provide a door down from the gallery. This door need not extend all the way to the floor, but may stop 1′–9″ above the floor.

ILLUMINATION

Natural Light: Under ordinary circumstances it is inadvisable to attempt to illuminate a court by natural light even where skylights can easily be provided. As squash is played principally during the winter at times of day when natural light would be inadequate it is best to ignore it entirely. Not only will the omission of skylights save money but a more satisfactory artificial illumination will be possible when a solid ceiling is provided to act as a reflecting surface for the indirect lights. Courts without skylights will also tend to be cooler in summer.

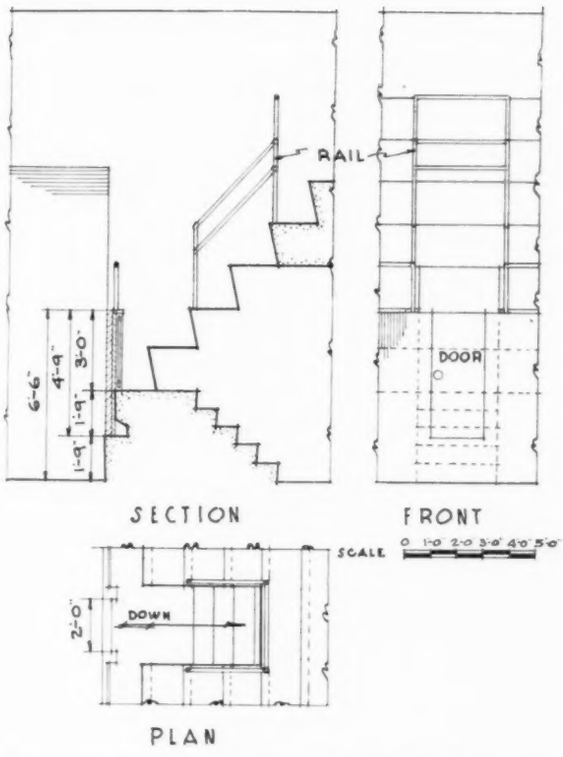
Skylights: When much daylight play is anticipated, skylights may prove practical if properly placed and of sufficient size. It is essential that they be so arranged that no direct sunlight can enter the courts. The skylights should also be arranged so that the player does not face them when serving. Diffusing glass should be used and of sufficient weight that it will not break when hit by the ball. Condensation gutters, covered with screening to prevent the ball from lodging in them, should be provided.

Where expense is of no importance an attractive result may be obtained by employing the arrangement common in museums, consisting of a glass ceiling with the lighting fixtures placed between this ceiling and the skylights.

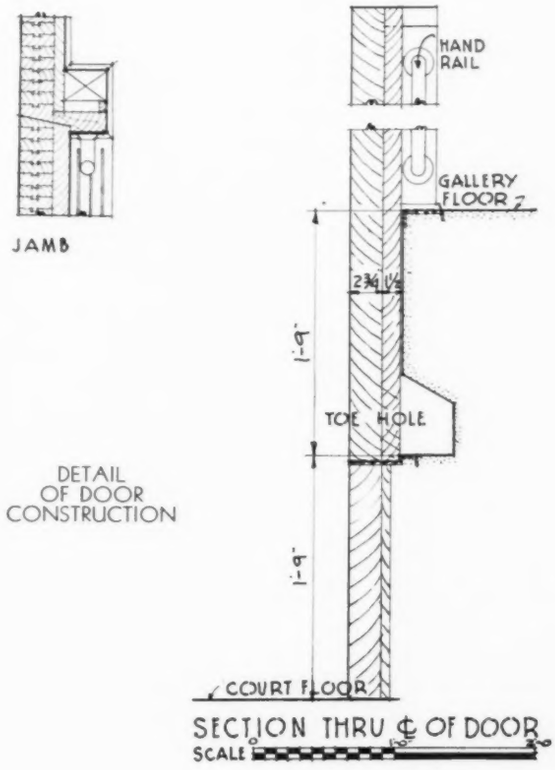
Artificial Lighting: Indirect reflectors should be used, placed to allow a clear height of not less than 16′–0″ between the floor and the bottoms of the fixtures. The illumination should be bright, as uniform as possible, and without glare. A minimum intensity of approximately 25 foot-candles at the floor is desirable. A wire screen should be provided over the reflectors to prevent balls from lodging in them. The light switch should not be placed in the court but just outside the door.

Where the ceiling does not provide a proper reflecting surface, as where skylights are employed, a large reflecting disk may be placed over each light.

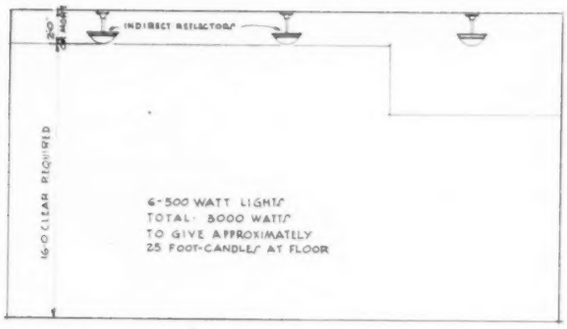
Where it is impossible to procure the full standard ceiling height of 18′–0″ direct illumination will be



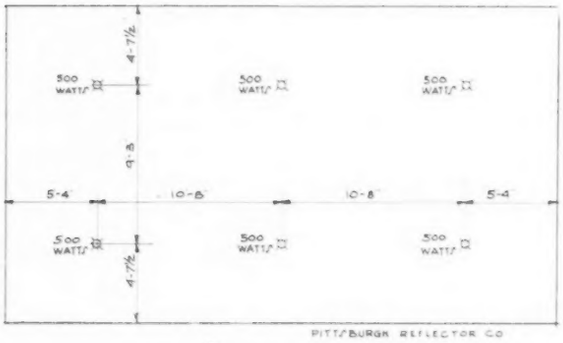
DETAIL OF SPECIAL GALLERY FOR COURT TO BE USED ONLY FOR SQUASH RACQUETS



DETAIL OF DOOR CONSTRUCTION



SECTION



PLAN

SUGGESTION FOR LIGHTING LAYOUT

necessary. If possible the fixtures should be recessed so that as great a clear height as possible may be provided.

HEATING AND VENTILATING

Heating: Courts need never be heated, and under no circumstances should they be heated more than just enough to temper the air in very cold weather. As it is possible to play with comfort in an unheated court during sub-zero weather it is better to omit all heating from consideration except where expense is of distinctly secondary importance. Where heating is desired the facilities need be only sufficient to take the chill from the air when the court is in use. This can probably be most easily accomplished either in connection with the ventilating system or by means of a small unit heater placed in the upper back part of the court above the parabolic curve referred to above. Humidification should not be attempted in connection with heating courts as it will greatly increase the possibilities of condensation. (As the gallery is not separated from the court in any way it also will be unheated. The spectators wear coats in cold weather as a matter of course.)

Those walls separating courts from heated portions of the building should be insulated the same as if they were outside walls. This also applies to floors and ceilings.

Ventilating: Good ventilation is of utmost importance. A mechanical system is usually required, especially where the courts may be used for any length of time without interruption.

In a private court or one not in continuous use natural ventilation if possible may be found adequate. Ventilation should never depend on opening windows or skylights into which rain or snow may fall, or be blown, as it is during bad weather that courts are apt to be most in use and the slightest water on the floor is very dangerous. No openings should be built in such a way as to interrupt the playing walls of the court but they may be placed in the space above the top of the walls and below the ceiling. Openings may also be constructed in the lower $7\frac{1}{2}''$ of the tell-tale. Where natural ventilation is to be used it is best to provide permanent openings which cannot be shut, thus insuring a constant, even if slow, change of air. These can be protected from the weather by louvers.

In the vast majority of cases artificial ventilation will be an absolute necessity. The exact number of air changes per hour that should be provided will depend to a considerable extent on such considerations as the manner in which the air is introduced and exhausted, the presence or absence of a gallery, the size of the gallery if present, whether or not the courts will be used during hot weather, and the like. Courts without galleries should probably have at least 10 air changes per hour and those with galleries should provide for at least 40 cubic feet of fresh air per person per minute.

The usual method is to introduce the air through registers in the bottom of the tell-tale and exhaust it through registers in the back of the ceiling or upper rear part of the court, but the flow of air may be reversed if more convenient. Where the court is placed with its front wall against an outside wall of the building the holes in the tell-tale may go through that wall so as to introduce air directly from outside without the use of any ducts. (Where the court is to be used for handball as well as for squash, register faces in the tell-tale should be kept as small as possible and be made of heavy gauge boiler plate, punched with $\frac{1}{4}''$ holes and set flush with the finished wall.)

Where the incoming air is apt to carry much dirt it should be filtered not only for the health of the players but also for the cleanliness of the courts. For small installations this can probably be most easily accomplished by means of unit viscous oil filters. In cases where the air is introduced directly through the outside wall of the building these filters

can be placed in the wall just in back of the register faces, which should be removable to permit access to the filters for cleaning.

Where the roof of a court is exposed directly to the sun it should be insulated to prevent overheating in summer. If there is a cooling system available cooled air may be introduced into the courts during hot weather.

Condensation: A very difficult problem in connection with court construction is caused by condensation, the result of warm moist air coming in contact with cool walls or floors. For example, where the temperature of the air is 70° and its relative humidity 68% condensation will appear on the walls if they are below 58° in temperature, or where the temperature of the air is 50° and the relative humidity is 56% condensation will appear on the walls if they are below 35° in temperature. Condensation thus occurs in courts when warm moist weather follows a cold period, the walls which have become cooled during the cold period, being unable to warm up as fast as the air. Excessive moisture is not necessary to produce conditions favorable to condensation provided the increase in the temperature and moisture content of the air is sufficiently rapid to leave the walls at a temperature below the dew point. The best means of preventing this is to construct the walls and floor in such a way that they never become any colder than necessary and that they warm up as quickly as possible when the temperature of the air rises.

Where the walls of courts are placed against inside rather than outside walls of the building they will be less subject to condensation because they will be warmer. Walls that are furred out from the masonry, as herein specified, and walls that have insulation between the wood and the masonry are less apt to cause trouble than if the wood is placed in direct contact with the masonry. This is due to the fact that the masonry wall will remain cold a long time and if there is direct contact it will tend to keep the wood cold also. (Courts with plaster walls are usually much more troubled with condensation than those of wood.)

Any attempt to prevent condensation through heating a court is usually unsuccessful. There is however one method which will absolutely eliminate all condensation, and that is to install heating pipes in the wall just in back of the wood lining and under the floor. These pipes will heat the walls and floor directly, and by raising their temperature above the dew point no condensation can occur. The heat need only be turned on when conditions require it and the walls should be heated no more than necessary. The squash ball is easily affected by changes in temperature and to overheat the wall might seriously alter the bounce of the ball. The expense of such an installation would usually only be justified where a court is built in a very damp climate subject to rapid temperature changes, although it might be worth while to equip exhibition courts. This would eliminate all danger of the possibility of condensation ever interfering with a tournament or exhibition match.

SOUND-PROOFING

Where courts are so located that the noise of play may be objectionable in adjoining portions of the building, effective sound-proofing should be employed. In using patented spring clips or other such devices care should be taken to avoid excessive resiliency. The ceiling of the court and the space above the top of the walls and below the ceiling may be treated with an acoustical material.

PAINTING

The walls and floor should be painted with not less than three coats of white paint. This should be finished with not less than three coats of white shellac or varnish, rubbed to a good gloss with pumice and water. To reduce the possibility of warping it is advisable to prime the unexposed sides of the wood strips before they are laid.

The ceiling and the space above the top of the walls should be finished in white to reflect the light from the indirect fixtures.

All lines should be a bright red. The dimensions given on the drawings are to the centers of the lines. The tell-tale shall be painted white except for the 2" bevel at the top which should be bright red.

UPKEEP

If a court is properly built there should be almost no upkeep except periodic cleaning and repainting. The walls and floor will inevitably get dirty and they should be occasionally wiped off with a damp cloth. The floor may be mopped but a minimum of water should be used. When the dirt on the floor and walls reaches the point where its darkness interferes with the game they should be repainted. How often this will be required will depend largely on the amount of use to which the court is put. A court subjected to a great deal of use will probably require its floor painted once or twice during a season and its walls once every two to five years. As the back and side walls of the court will not get dirty as quickly as the front wall it may not be necessary to paint them as frequently. To prevent the floor from getting dirty more rapidly than necessary the floor of the hallway leading to the court should be of a material easy to keep clean.

Where a court is used for squash tennis it is essential that the walls be always kept clean and smooth, especially the back wall and the side walls near the back. If they become rough or sticky the ball will take more spin and the angle at which the ball leaves the wall be greatly affected.

CALL BELL

In every court, except in private installations, there should be placed a loud electric bell to notify players of the termination of the playing period. This may be run by an attendant or automatically as desired. (The usual playing period is 30 minutes.)

CLOCK

It is well, especially in a private installation, to provide a small electric clock in the upper rear part of the court by which players can observe the time.

EMERGENCY BELL

In certain cases it may be advisable to provide an electric button which will ring a bell in the office or some regularly used part of the building. This is to prevent all possibility of players ever being trapped in a court without means of calling help, an occurrence which has been known to happen on more than one occasion. The button could be recessed in the tell-tale and should have an arrow pointing to it.

DRESSING ROOMS AND ACCESSORIES

Where possible, courts should have available for use in connection with them a warm dressing room, toilets and shower baths, lockers and a dryer. Even when a court is built in the basement of a residence it is desirable to furnish facilities where players not connected with the household may dress without having to make use of upstairs guest rooms.

At the present time there is a marked tendency in clubs to do away with the old-fashioned locker room where every member rents a permanent locker and to substitute for it a more pleasant dressing room, playing clothes being stored in wire baskets in a special room for that purpose and brought by the attendant when needed. This system is more economical of space and equipment and makes it possible for the attendant to dry all clothes immediately after use and before they are stored away, thus largely eliminating the usual locker room odor. Where this arrangement is used there should be provided in the dressing room, in addition to hooks and clothes hangers, small drawers or pigeon holes with hinged doors in which a player may lock his watch and other valuables. The key to this may be pinned to his trousers while playing.

A dry storage space should be provided for bats which should never be placed in lockers with damp clothes. A small work room should be provided for restringing bats if this is to be done on the premises.

In many cases it will be found desirable to arrange things in such a way that the courts may be equally available to both men and women. In spite of the fact that at present there are but few courts open to women the game is becoming more popular with them every year.

DOUBLES SQUASH RACQUETS

Although much less extensively played than singles the doubles game enjoys a wide popularity. It is more sociable and less strenuous than singles and is enjoyed particularly by older men.

The Court: The doubles court is similar to the singles court in practically all respects except size.

Dimensions: The inside finished dimensions of a standard doubles squash racquets court should be:

Width	25′–0″
Length	45′–0″
Height	
Front and side walls	20′–0″
Back wall	8′–0″

(No provision is made in the standard specifications for lowering the side walls near the back, as in the singles court.)

No ceiling height is given in the standard specifications but not less than 22′–6″ should be provided.* A clear height of not less than 20′–0″ should be provided between the floor and the bottoms of the lighting fixtures.

Construction: Same as for the singles court.

Tell-Tale: Same as for the singles court except that the top edge is 22″ above the floor. The distance from the top of registers placed in the tell-tale to the floor should be not more than 12½″.

Lines: Lines 1″ in width should be provided as follows (the dimensions given are to the centers of the lines):

Front Wall: Service line: 8′–1½″ above the floor.

Back Wall: Back wall line: 8′–½″ above the floor.

Floor: Service court line: 15′–0″ from the back wall. Service box line: 4′–6″ in radius. A line from the service court line to the back wall half way between the two side walls.

OTHER USES OF COURTS

When built in connection with a private house a court may provide an excellent children's gymnasium. A basket ball basket suitable for practice shots may be mounted in the rear of the court. A swing, rings and trapeze may be suspended from the ceiling. If volley ball is to be played in a court small flush holders of the type used for a removable tell-tale should be placed in the center of the side walls to hold the net.

* The parabolic curve representing the extreme theoretical flight of a fair ball starts at the ceiling at a distance of 20′–6″ from the back wall and meets the back wall at its top, 8′–0″ above the floor.

BUILDING TRENDS INDICATED BY THE FEDERAL CENSUS—Part 1

By MICHAEL A. MIKKELSEN

A summary of the population statistics of the Federal Census for 1930 has been published by the U. S. Department of Commerce, Bureau of the Census, in a pamphlet entitled *Population Bulletin, First Series*. The summary gives the total population for States and counties, for urban and rural areas, and for incorporated places of 1,000 and over.

The document consists of some 80 pages of figures related to total population, before breakdown by families, age groups and so on; and trends with respect to growth and distribution are brought out in 15 tables. The pamphlet is of practical interest to the building industry, and may be obtained from the Superintendent of Documents, Washington, D. C., at 15 cents a copy.

The increase in total population during the decade was 17,064,426, of which 14,650,220 was urban and 2,414,206 rural. The urban population in 1930 amounted to 68,954,823, or 56.2 per cent of the total population, as against 54,304,603, or 51.4 per cent of the total, in 1920. Incorporated places of less than 2,500 are classed as rural.

Table 2 has been compiled partly from the Population Bulletin and partly from a release entitled *Summary by States of the Preliminary Reports on the Census of Manufactures: 1929*. It shows that, with few exceptions, the notable increases in population were limited to states of high rank in manufacturing. Maryland is the only important manufacturing state (value of products in 1929, $1,120,409,058) whose population increase (181,865) does not entitle it to a place in the table, which includes only states with a population increase of 225,000 or more.

Growth in population is influenced by immigration, which in turn is influenced by opportunities for employment. The net increase through foreign immigration during the decade was 3,187,312. This substantial voluntary influx seems to confirm the conclusion of authorities on labor conditions that expansion of nonindustrial employment was an outstanding feature of the period.

Opportunities for employment in the manufacturing industries decreased; the number of wage earners employed therein declined from 9,000,059 in 1919 to 8,807,536 in 1929, a decrease of 2.1 per cent. However, the period as a whole was marked by prosperity in the manufacturing industries. Wages increased 11.4 per cent, from $10,461,786,869 to $11,649,536,855, while the value of products advanced 13.0 per cent, from $62,041,795,316 to $70,137,459,352. Since 1922 strikes and industrial disputes have been remarkably few compared with earlier periods.

Evidently, the expansion of nonindustrial employment through growth of trade and service was associated with prosperity and rising standards of living in the manufacturing industries.

Meanwhile, not a few students of labor conditions assert that a large volume of unemployment persisted throughout the decade, even in the most active years. Chronic unemployment on a large scale, if it existed,

TABLE 1. POPULATION OF CONTINENTAL UNITED STATES: 1790–1930

Census Year	Population	Increase Over Preceding Census		Per Cent of Increase with Correction for 1870 and 1880[1]
		Number	Per Cent	
1930	122,775,046	17,064,426	[2]16.1	[2]16.1
1920	105,710,620	13,738,354	14.9	14.9
1910	91,972,266	15,977,691	21.0	21.0
1900	75,994,575	13,046,861	20.7	20.7
1890	62,947,714	12,791,931	25.5	25.5
1880	50,155,783	11,597,412	30.1	[1]26.0
1870	38,558,371	7,115,050	22.6	[1]26.6
1860	31,443,321	8,251,445	35.6	35.6
1850	23,191,876	6,122,423	35.9	35.9
1840	17,069,453	4,203,433	32.7	32.7
1830	12,866,020	3,227,567	33.5	33.5
1820	9,638,453	2,398,572	33.1	33.1
1810	7,239,881	1,931,398	36.4	36.4
1800	5,308,483	1,379,269	35.1	35.1
1790	3,929,214	.....	.....	....

[1] Enumeration of 1870 incomplete in Southern States. Percentages in this column for 1860–1870 and 1870–1880 represent estimated true rates of increase.

[2] In comparing this percentage of increase with that shown for the decade 1910–1920, allowance should be made for the fact that the period between the censuses of 1910 and 1920 was less than a full decade, and that between the 1920 and 1930 censuses was more than a full decade. An increase of 16.1 per cent for 123 months (the time between January 1, 1920, and April 1, 1930) is equivalent to 15.7 per cent for exactly 10 years; and the 1920 increase for 116½ months (the time between April 15, 1910, and January 1, 1920) is equivalent to 15.4 per cent for 120 months. Making this adjustment, the rate of increase for the decade ending in 1930 is only slightly higher than that for the preceding decade.

TABLE 2. STATES WITH AN INCREASE OF 225,000 OR MORE: 1920–1930

	Value of Manufactured Products, 1929	Population 1930	Increase Over 1920	% Increase
California	$3,104,086,175	5,677,251	2,250,390	65.7
New York	9,979,958,958	12,588,066	2,202,839	21.2
Michigan	4,636,361,417	4,842,325	1,173,913	32.0
Texas	1,449,801,916	5,824,715	1,161,487	24.9
Illinois	6,232,438,498	7,630,654	1,145,374	17.7
Pennsylvania	7,387,856,808	9,631,350	911,333	10.5
Ohio	5,999,123,993	6,646,697	887,303	15.4
New Jersey	3,937,656,019	4,041,334	885,434	28.1
North Carolina	1,301,319,152	3,170,276	611,153	23.9
Florida	232,912,261	1,468,211	499,741	51.6
Massachusetts	3,392,149,485	4,249,614	397,258	10.3
Oklahoma	452,161,249	2,396,040	367,757	18.1
Indiana	2,534,716,550	3,238,503	308,113	10.5
Wisconsin	2,158,400,172	2,939,006	306,939	11.7
Louisiana	684,885,999	2,101,593	303,084	16.9
West Virginia	500,393,174	1,729,205	265,504	18.1
Alabama	560,974,640	2,646,248	298,074	12.7
Tennessee	706,053,577	2,616,556	278,671	11.9
Connecticut	1,495,635,453	1,606,903	226,272	16.4
Missouri	1,876,140,033	3,629,367	225,312	6.6

would no doubt be carried forward to affect both the birth rate and the immigration rate during the current census period. In the absence of any adequate continuous registration of the unemployed, no direct statistical measurement has been possible. The complete report on the census of unemployment in preparation by the Bureau of the Census will therefore be widely studied.

Prosperity of the building industry depends so largely upon the growth of the larger cities that Table 3 will be of interest. The expansion of such cities as New York, Chicago, Detroit and Los Angeles is an impressive fact. In every large city there is a considerable element of the population whose income for a variety of reasons is subnormal, but the majority enjoy larger net earnings than they could obtain in smaller places.

The British Board of Trade established long ago by examination of the principal cities of Europe and America that big cities are big because their trade and industry are profitable enough to outbid lesser cities for labor. In the light of this knowledge, the population figures of, say, New York, explain why the penalty for real estate speculation and overbuilding there is never so disastrous as the layman expects, and why as a rule the big city leads the revival in the building industry.

Urban population advanced from 54,304,603 in 1920 to 68,954,823 in 1930, an increase of 14,650,220 or 27.0 per cent. The number of urban places rose from 2,787 to 3,165. The 363 cities with a population in 1930 of 25,000 or more contain some 40 per cent of the population of the country; their increase accounts for 67 per cent of the total increase.

An interesting fact brought out by Table 4 is the rapid growth of cities with a population of 10,000 to 100,000. Many of these are suburban communities. "There appears to be," according to a publication entitled *Distribution in the United States and Europe*, issued by the International Chamber of Commerce, Washington, D. C., "a definite trend toward suburban residence, largely due to improved public and private transportation facilities and to expansion of business districts in the larger cities. This trend has an influence towards creating secondary distribution centers for food and convenience goods near the larger centers."

Probably some part of the rapid growth of such cities may be traceable to decentralization of manufacturing. One of the notable developments of recent years is the greatly increased production of electric power. Steam, if used directly, must be used quite near the place where it is generated. Electricity can be distributed at comparatively small cost over long distances. Students of municipal affairs have been predicting a decentralization of industrial production in consequence of the greatly increased use by factories of electric motors and internal combustion engines. Between 1925 and 1929, there was an increase of 23,320 manufacturing establishments, from 187,390 to 210,710, while the number of motors driven by purchased energy advanced from 15,868,828 to 22,706,857, an increase of 6,838,029.

Diffusion of manufacturing does not imply diminished growth of big cities, which in the present stage of the country's development depends upon expansion of trade and service. Indeed, industrial

TABLE 3. CITIES WITH A POPULATION OF 300,000 OR MORE IN 1930

	Population 1930	Population 1920	Population Increase
1. New York, N. Y.	6,930,446	5,620,048	1,310,398
2. Chicago, Ill.	3,376,438	2,701,705	674,733
3. Philadelphia, Pa.	1,950,961	1,823,779	127,182
4. Detroit, Mich.	1,568,662	993,678	574,984
5. Los Angeles, Calif.	1,238,048	576,673	661,375
6. Cleveland, Ohio	900,429	796,841	103,588
7. St. Louis, Mo.	821,960	772,897	49,063
8. Baltimore, Md.	804,874	733,826	71,048
9. Boston, Mass.	781,188	748,060	33,128
10. Pittsburgh, Pa.	669,817	588,343	81,474
11. San Francisco, Calif.	634,394	506,676	127,718
12. Milwaukee, Wis.	578,249	457,147	121,102
13. Buffalo, N. Y.	573,076	506,775	66,301
14. Washington, D. C.	486,869	437,571	49,298
15. Minneapolis, Minn.	464,356	380,582	83,774
16. New Orleans, La.	458,762	387,219	71,543
17. Cincinnati, Ohio	451,160	401,247	49,913
18. Newark, N. J.	442,337	414,524	27,813
19. Kansas City, Mo.	399,746	324,410	75,336
20. Seattle, Wash.	365,583	315,312	50,271
21. Indianapolis, Ind.	364,161	314,194	49,967
22. Rochester, N. Y.	328,132	295,750	32,382
23. Jersey City, N. J.	316,715	298,103	18,612
24. Louisville, Ky.	307,745	234,891	72,854
25. Portland, Oregon	301,815	258,288	43,527

TABLE 4. URBAN PLACES CLASSIFIED ACCORDING TO SIZE, 1930

Number of Places	Size	1930	1920	Increase	Per Cent Increase
5	1,000,000 or more	15,064,555	10,145,532	4,919,023	48.5
8	500,000 to 1,000,000	5,763,987	6,223,769	— 459,782	—7.4
24	250,000 to 500,000	7,956,228	4,540,838	3,415,390	75.2
56	100,000 to 250,000	7,540,966	6,519,187	1,021,779	15.7
98	50,000 to 100,000	6,491,448	5,265,747	1,225,701	23.3
185	25,000 to 50,000	6,425,693	5,075,041	1,350,652	26.6
606	10,000 to 25,000	9,097,200	6,942,742	2,154,458	31.0
851	5,000 to 10,000	5,897,156	4,997,794	899,362	18.0
1332	2,500 to 5,000	4,717,590	4,593,953	123,637	2.7
		68,954,823	54,304,603	14,650,220	27.0

decentralization is caused primarily by the ability of trade and service to outbid factories for the use of centrally situated locations, and is facilitated by the change from steam to electric power.

The rate of growth of population is a composite effect of the net immigration and the birth and death rates, the most difficult of which to predict is the birth rate. The Scripps Foundation, basing its forecast on an analysis of the 1920 population and on the immigration regulations existing in 1927, predicted a population for 1930 which exceeded the actual census by one tenth of one per cent.[1] This remarkably small error seems to be attributable mainly to a greater fall in the birth rate than was expected. The Scripps Foundation estimates for future 5-year periods will be revised as soon as data by age groups are available from the 1930 census.

The birth rate is affected by economic and social factors which need not be discussed here. It is also affected, more profoundly perhaps, by reduced immigration. Restrictions on immigration since 1914, through embargoes by foreign governments during the war, and through our own legislative enactments since 1921, have brought about a reduction in the ratio of persons of child-bearing age. The trend towards a more even age distribution is still under way. For this and other reasons, a declining birth rate is to be expected, with a consequent rate of growth of population lower than that of the last decade.

This expectation had evidently been considered by President Hoover in the light of available information when, in outlining his Twenty Year Plan, he said that in the next twenty years we shall add 20,000,000 to our population.

Reduced immigration, it is conceded, has contributed not only towards the higher standard of living of wage earners during the past census decade, but also towards the greater productivity of labor.[2] Its economic effects have extended to the building industry. The growth in per capita income of wage earners, coupled with a higher level of education, has been reflected in a demand for improved dwellings, apartments and other structures, including places of work and recreation. Thus, in the borough of Manhattan, New York City, slum tenements have been giving way to business buildings and apartment houses, with advantage to real estate values, while dispersal of wage earners with increased purchasing power has kept the building industry phenomenally active in the outlying boroughs.

The acceleration of apartment house construction noted in recent years is attributable to a variety of influences, but one of these without doubt is the fact that the median age of the population is rising. There will be relatively fewer children and more old people as time goes on and more or less readjustment in various forms of land utilization.

Despite large gains in urban communities as a whole, 226 cities with a population of 10,000 or more had fewer people in 1930 than in 1920. The number of cities which receded in population between 1910 and 1920 was 139.[3]

The retrogression of cities revealed by the census is for the most part chargeable to economic factors, such as shifting of industry, new shopping habits induced by good roads and the automobile, decline of rural districts. The loss of capital invested in real estate traceable to decay of cities is probably less than that occasioned by badly planned suburbs.

To stabilize land values, besides serving other ends, regulation of the use of city land by zoning ordinances has been widely introduced since 1916, when there were 8 zoned cities in the United States as against 885 found in a recent survey by the Division of Building and Housing of the Department of Commerce.

Regulation of the use of suburban land is a later step, taken so far by 94 cities in the United States. In general, such regulation requires that real estate

[1] P. K. Whelpton, page 125, The American Economic Review, Supplement, March, 1931: Papers and Proceedings of the Forty-third Annual Meeting of the American Economic Association.

[2] Wesley C. Mitchell, page 886, Recent Economic Changes in the United States. McGraw-Hill Book Company, New York, 1929.

[3] P. K. Whelpton, page 125, The American Economic Review, Supplement, March, 1931.

developers make sites usable before selling them, by installing all improvements, or give bond insuring installation.[4]

The extremely uneven distribution of population gains disclosed by the census testifies that important occupations failed of a proportionate share in the prosperity of 1922–1929; for example, agriculture, ship building, coal mining, the textile trades and the leather industries, most of which were depressed by conditions created during the war.

[4] H. Morton Bodfish, page 129, The American Economic Review, Supplement, March, 1931.

The prosperity of 1922-1929, though not universal, was nevertheless real. It was achieved in the face of adverse economic conditions abroad, largely through technological progress and restriction on the rate of growth of population, coupled with recognition by capital and by labor, as represented by the American Federation of Labor, that rising average incomes follow increased production of goods per hour of labor. This in some of its essentials is the conception of industrial cooperation which America opposes to the various phases of communism experimented with abroad.

BUILDING TRENDS INDICATED BY THE FEDERAL CENSUS—Part 2

By L. SETH SCHNITMAN

At no time in our entire economic history have our population figures* been of as deep significance to business and industry as they are today. Particularly is this so because the current decade, which will end with 1940, appears destined to show the most abrupt bend in the rate of growth yet experienced. This impending change is not alarming if business generally recognizes it and prepares for its manifold implications.

Heretofore the rate of population growth has insured the advance of business and industry at least at a rate equal to the population growth-rate. Many businesses and industries have expanded far beyond the demands of population increases due in large part to our ever-rising living standards. But now that the rate of growth is lower than at any time since our first census in 1790, business and industry are face to face with the problem of creating further offsetting influences so that our progress—industrial, social, political—shall not be impeded.

To the building industry, second in importance only to agriculture, the problems are real and the solution is definite. Thousands upon thousands of families are still living in outmoded, unsanitary, uneconomic accommodations. Provide these families with livable quarters according to our present-day standards and at once the major problem of a declining population growth-rate is overcome. The current decade can well dedicate itself to reconstruction, redevelopment, rehabilitation — intensively rather than extensively—so that new building may not only offset the influences of a declining population growth-rate but even provide us with a development program more soundly conceived, more economically executed than ever before.

At this point it appears advisable to consider the population figures shown in the article on page 141. The combined population of the thirteen cities having in excess of 500,000 inhabitants each, according to the 1930 census enumeration, totaled 20,828,542 or 17 per cent of the entire population of continental United States. The 1920 census disclosed a combined total for these same centers amounting to 16,826,448 or 16 per cent of the entire population. Both for 1920 and 1930 the aggregate population for these cities was 30 per cent of the total urban population for the country as a whole. Between the two census periods the thirteen largest cities showed a population growth of 23.8 per cent as contrasted with a gain for the entire country of only 16.1 per cent and an increase in urban population of 26.9 per cent. Hence it is seen that although these large centers showed more rapid advance than did the country at large, inclusive of rural areas, the rate of increase was somewhat lower than that for urban centers as a whole.

The population figures by age groups, which are now being released by the Census Bureau, throw additional light upon the social changes which have taken place since 1920. For the thirteen largest cities our population under 5 years of age showed a decline between 1920 and 1930 of 2.3 per cent. To

(*Continued on page 54, advertising section*)

*As this issue goes to press, word is received from the Superintendent of Documents, Government Printing Office, Washington, D. C., that copies of Vol. 1, *Number and Distribution of Inhabitants, Fifteenth Decennial Census of the United States, 1930*, may be obtained at the price of $2 each.

(*Continued from page 144, editorial section*)

put it still another way this age group in 1920 represented 9.8 per cent of the total population of the thirteen cities while by 1930 this group had declined in importance to where it represented only 7.7 per cent of the inhabitants in those same cities.

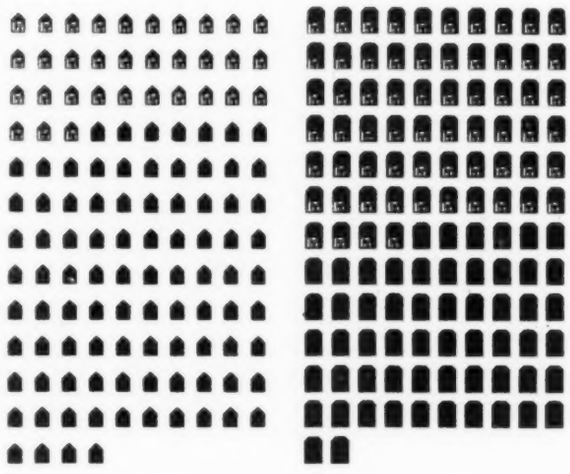
This phenomenon will have an increasingly important bearing on the future conduct of American business. To the building and construction industries it definitely signalizes a need for a closer gauging of the economic factors involved. With the population in our most populous cities growing older, the building industry must gear itself to the new tempo. No sudden jump in the birth-rate, at least so far as these cities go, appears probable; present conditions rather favor the reverse.

Hence, so far as these largest cities are concerned, our architects and city planners, our builders and contractors are face to face with the problem of providing a newer housing mode patterned to fit the changing status of our aging metropolitan dwellers. Newer modes must be produced to provide suburban advantages in our superurban centers. High unit land values in these centers make difficult the development of housing except in the form of apartment or multistoried types. Now that the urban population is growing older, and life expectancy in the higher age brackets has been materially extended, it appears for these cities as a certainty that the apartment type of housing will see even further advances in economies, design, conveniences, and facilities for leisure and play, at the expense of the 1- and 2-family house.

It would appear also that the most forceful appeal to home ownership, that of child-welfare, may be definitely on the wane and that so far as these cities are concerned the renter will become a more important factor in setting new building tastes.

One- and two-family houses erected during the decade ended 1930 in the 13 largest cities (including estimates for Los Angeles and San Francisco) represented an expenditure of $3,300,000,000, or 34 per cent of the total for all residential building in those cities during the period. Apartments and hotels accounted for $6,400,000,000 or 66 per cent of the total. To put this relationship between the two major dwelling types in another way, for every dollar that was spent on the apartment or hotel type only 52 cents was put into 1- and 2-family dwellings. For the United States as a whole contracts awarded for 1- and 2-family houses for the ten-year period, 1921-1930, are estimated at almost $12,400,000,000, or slightly more than 50 per cent of all new residential building undertaken during the decade. Apartment and hotel construction showed approximately $12,200,000,000 for the period. Further analysis of these facts indicates that 52 per cent of the value of all apartment and hotel construction in the United States was concentrated in the thirteen largest cities, while for 1- and 2-family houses these cities accounted for only 27 per cent of the total for the country as a whole. For residential building as a whole these same cities accounted for 40 per cent of the value of all residential undertakings during the period

RESIDENTIAL CONSTRUCTION IN U. S. A.
1921 – 1930



27 per cent of the value of all new 1- and 2-family houses built in the United States during the decade ended 1930 was concentrated in the thirteen cities of 500,000 inhabitants and over. These cities have 30 per cent of the entire urban population of the country. Apartment and hotel construction in these same cities during the decade, 1921-1930, accounted for 52 per cent of all apartment and hotel building undertaken in the entire United States.

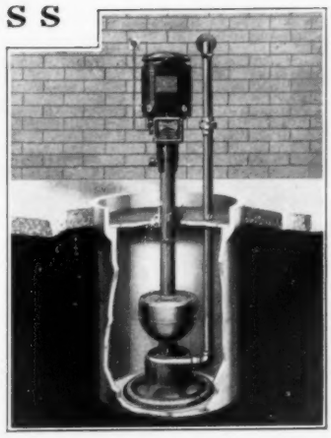
although only 17 per cent of the total population of the country was concentrated in these cities.

For the thirteen cities under examination the white population totaled 19,258,972 in 1930; of this number 77 per cent were native-born while the remainder were of foreign birth. Native-born children under 5 years of age represented 10.3 per cent of the total native-born white population of those cities. At the same time foreign-born children under 5 years of age represented only two-tenths of 1 per cent of the entire foreign-born white population. Our foreign-born are in the higher age brackets. This reflects to a striking degree only one of the effects of restrictive immigration that the building industry must view as fundamental in setting up the new economics which social changes are forcing. In this connection it must be remembered that the birth rate among foreign-born parents is higher than that for native-born inhabitants and that the demand for housing accommodations is different in many aspects between these two groups.

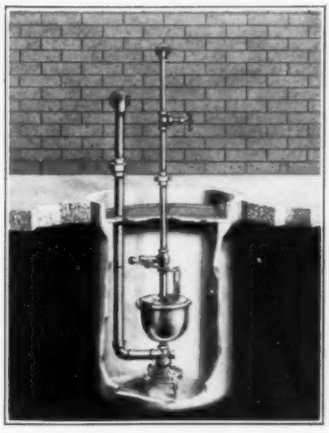
Based upon the present rate of population growth as estimated by the Census Bureau—one net addition each 36 seconds—it is reasonable to expect that the increment in number of inhabitants for the decade ending 1940 will be lower than at any time since that shown for the decade that ended 1870. It will be recalled also that the indicated percentage of gain will be lower than at any time since our independence. Though migration from the farm will probably again be resumed once business and industrial conditions appear definitely on the mend, it is to be doubted if the migration in the current decade will have any large effect on the ultimate demand for urban housing.

(*Continued on page 58, advertising section*)

CONTRASTS IN INDUSTRIAL PROGRESS



Many architects specify these Penberthy Pumps for draining seepage water from basements, elevator pits, piping tunnels, etc.

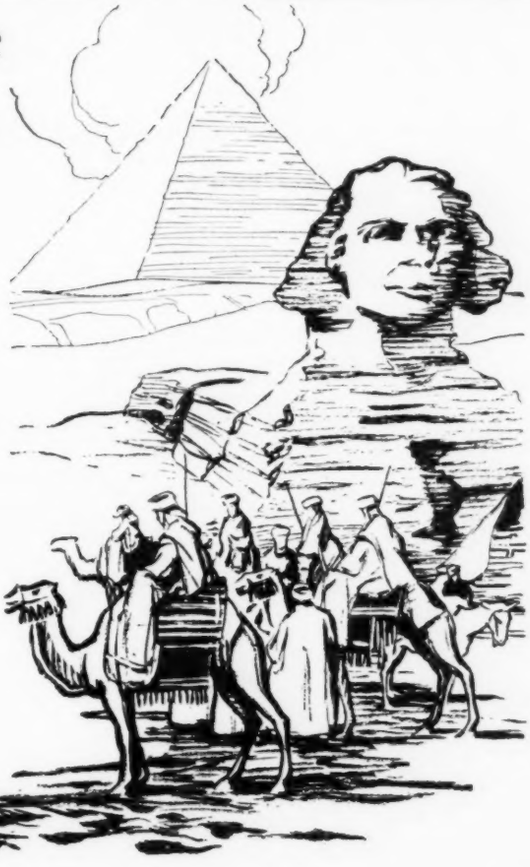


Lifting water from the River of the Pharaohs

ALONG the Nile they call these Shadufs, and they use them for elevating water into the irrigation ditches. At this particular point the Shadufs have to be operated in two stages even though the "operating head" is not more than 15 feet.

Could elevating water be made more difficult than this? One small, compact Penberthy Pump (either an Automatic Electric or Automatic Water Operated unit) could displace this whole installation of Shadufs and still be idle most of the time.

One of the salient advantages of these Penberthy Pumps lies in the fact that they can remain idle indefinitely without their efficiency or smoothness of operation being affected. Corrosion is powerless to deteriorate Penberthy Pumps because they are copper and bronze throughout.



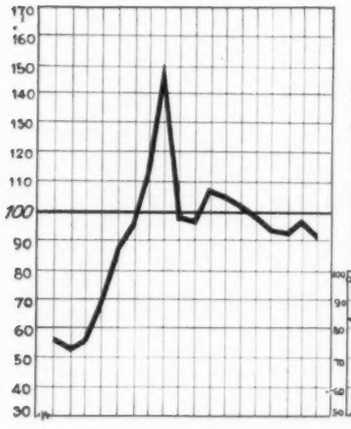
PENBERTHY INJECTOR CO

ESTABLISHED IN 1886 — DETROIT — CANADIAN PLANT WINDSOR, ONT.

PENBERTHY PRODUCTS

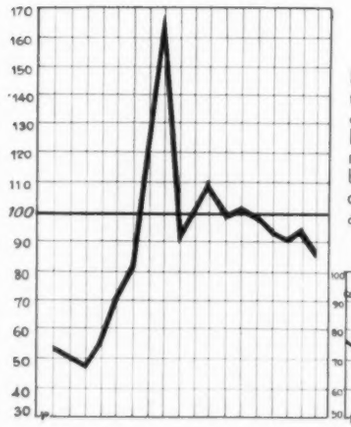
WHOLESALE PRICES FOR BUILDING MATERIALS

1926 Monthly Average = 100



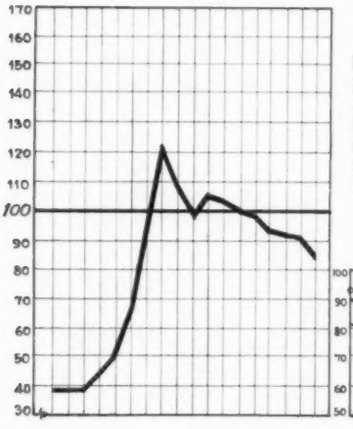
GENERAL INDEX

Materials are still 37 per cent above prewar levels; finished manufactuers are only 7 per cent above; all commodities' index is now at prewar level.



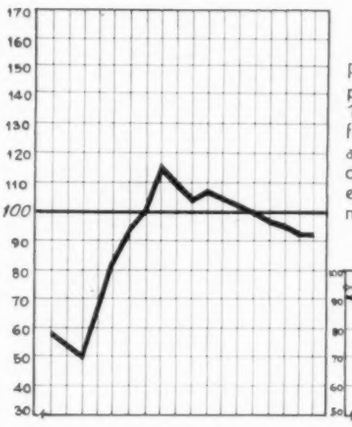
LUMBER

Lumber prices are now 25 per cent above prewar levels. Though readjustment has been furthered, additional weakness appears probable.



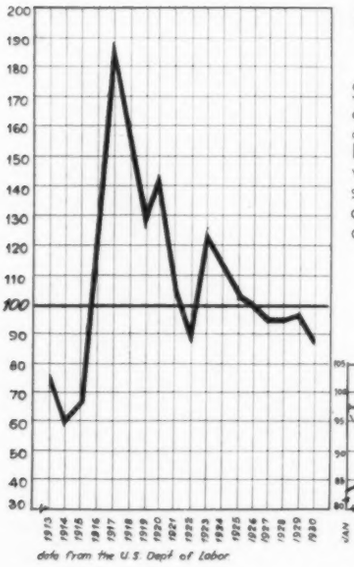
BRICK

Prices are more than twice as high as in 1913. Any further weakness in new building might seriously affect brick market.



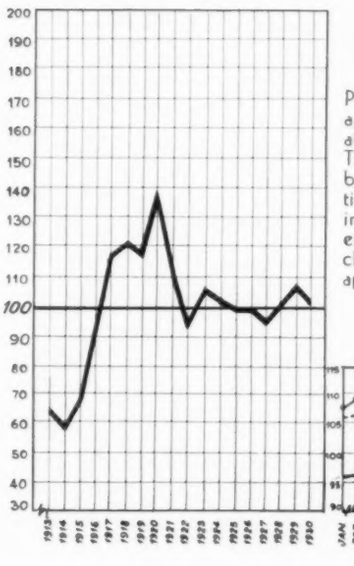
CEMENT

Prices are still 30 per cent above 1913 level. Though further weakness appears probable, declines from present levels should not be steep.



STRUCTURAL STEEL

Structural prices are now 9 per cent above prewar levels. Prices may weaken in face of slow demand, but declines should be only moderate.



OTHER MATERIALS

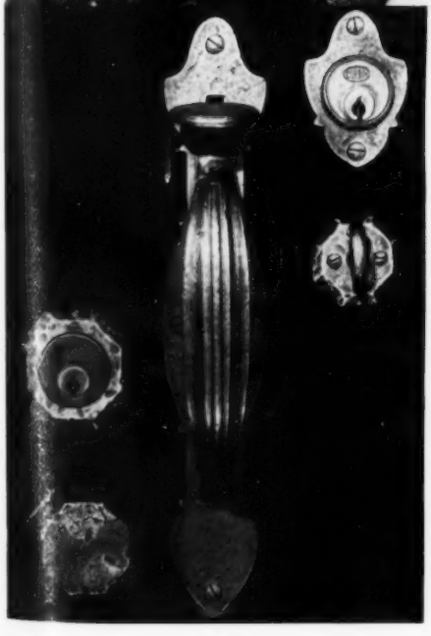
Prevailing prices are 45 per cent above 1913 levels. This group embraces glass, stone, tile, prepared roofing, lime, pipe, etc. Further declines for group appear indicated.

data from the U.S. Dept of Labor

At Dartmouth, the enduring beauty of Corbin Colonial Hardware

GOOD BUILDINGS DESERVE GOOD HARDWARE

CORBIN



Pomeroy Hall, Dartmouth College
Jens Fredrick Larson, Architect

WHEN you build for the ages, hardware becomes an even more important detail. It should have the permanency, the enduring beauty, of the very stones themselves—and it will if you use Corbin Colonial Hardware. The Colonium metal used in the EH lines is unchanging. With the passage of time it merely develops a ripened, richer patina.

P. & F. CORBIN SINCE 1849 New Britain, Connecticut, U. S. A.
The American Hardware Corporation, Successor
New York Chicago Philadelphia

(Continued from page 54, advertising section)

The construction industry has an annual productive capacity approximating 11 billions of dollars. Consider a current operating ratio of about 40 per cent and at once the severity of the problem becomes apparent. In the largest of our cities intensive reconstruction has been indicated as the solution. In our smaller cities, particularly the 889 centers having populations ranging from 10,000 to 100,000, there is need for coordinated, scientific planning and methodic direction to mesh the necessary factors for the production of better dwellings, more up-to-date commercial structures, and finer facilities for work, education and recreation.

ARCHITECTS DESIGNING GOVERNMENT BUILDINGS

The present policy of the Treasury Department in regard to the employment of architects for new projects in the government building program was set forth in a bulletin from the Treasury Department in Washington, dated March 2, 1931. It stated:

"In order to expedite public building construction during the present period of unemployment, the Treasury Department is availing itself of the services of outside architects, but it is not possible to state in advance what particular projects will be considered for this outside service.

"The present organization of the Office of the Supervising Architect of the Treasury is turning out from fifteen to twenty construction projects per month, and it is necessary to keep this force occupied.

"Projects for which the limits of cost are fixed at less than $150,000 are of such a size and character that plans for certain buildings already constructed can be adapted to such projects, thereby saving much time in the preparation of drawings and specifications. For this reason projects of this character are generally handled in the Office of the Supervising Architect."

Since then the following list of architects participating in federal building projects has been compiled for THE ARCHITECTURAL RECORD by Mr. H. A. Johns of F. W. Dodge Corporation:

Under Supervising Architect, James A. Wetmore, Treasury Department. Authorized buildings, $150,000,000. Sites, $40,000,000.

Government Printing Office, $1,500.000. Private Plans. General Contractors, Rust Engineering Co., Pittsburgh. Completed.

Commerce Department Office Building, $17,500,000. Architects, York and Sawyer, New York City. General Contractors, Consolidated Engineering Co., Baltimore. Finishing.

Administration Building, Department of Agriculture, $2,000,000. Architects, Rankin and Kellogg, Philadelphia. General Contractors, George Hyman Construction Co., Washington. Completed.

Internal Revenue Office Building, $10,000,000. Private Plans. General Contractors, James Baird Co., New York City and Washington. Completed.

Liberty Loan Office Building. (Addition) $875,000. Private Plans. General Contractors, Skinker and Garrett, Washington. Completed.

Office Building (Post Office Department) $10,300,000. Architects, Delano and Aldrich, New York City. Plans in progress.

Office Building (Department of Labor) $4,750,000. Architect, Arthur Brown, San Francisco. Plans in progress.

Office Building (Interstate Commerce), $4,500,000. Architect, Arthur Brown, San Francisco. Plans in progress.

Office Building (Connecting Wing), $2,000,000. Architect, Arthur Brown, San Francisco. Plans in progress.

Office Building (Department of Justice), $12,500,000. Architects, Zantzinger, Borie and Medary, Philadelphia. Plans in progress.

Office Building (Alteration, State Department), $3,000,000. Architect, Waddy B. Wood, Washington. Plans completed.

Office Building (Public Health), $850,000. Architect, J. H. DeSibour, Washington. Plans in progress.

National Archives Building, $8,750,000. Architect, John Russell Pope, New York City. Plans in progress.

Post Office Building (Annex), $4,000,000. Architects, Graham, Anderson, Probst and White, Chicago.

Office Building (Navy Department), $10,000,000. Architect, not selected. Not authorized.

Office Building (War Department), $10,000,000. Architect, not selected. Not authorized.

Office Building (Coast Guard), $3,000,000. Architects, Bennett, Parsons and Frost, Chicago.

Office Building (Extensible—Department of Agriculture), $12,500,000. Architects, First Section, private plans. Cost $2,000,000. General Contractors, First Section, Starrett Brothers, New York City. Steel erected.

Laboratory Building (Public Health), $750,000.

Central Heating Plant, $5,749,000. Architects and Engineers, United Engineers and Construction Co., Philadelphia. Plans in progress.

Power Plant Building (Addition) (Agriculture), $49,900. Architect, private plans. General Contractor, W. C. Spratt, Fredericksburg. Work starting.

Under Supervision of David Lynn, Architect of the Capitol, Special Appropriations:

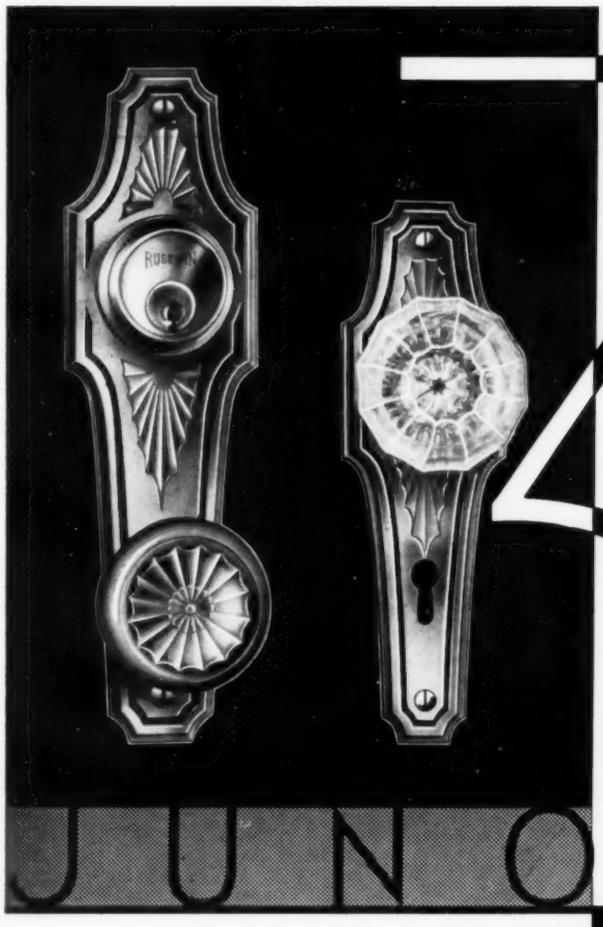
House Office Building (Addition), $7,500,000. Architects, Allied Architects, Washington, D. C. General Contractors, Consolidated Engineering Co., Baltimore. Steel erected.

Congressional Library (Annex), $6,500,000. Architects, Pierson and Wilson, Washington. Plans in progress.

Congressional Library (Alteration to Front). Architects, Pierson and Wilson, Washington. Plans in progress.

Supreme Court Buildings, $8,500,000. Architect, Cass Gilbert, New York City. Plans in progress.

Capital Power Plant (Improvements), $318,000. Engineer, E. L. Myers, Washington. General Contractors, Catalano and Pecora Construction Co., Baltimore. Work to start shortly.



3 NEW DESIGNS BY RUSSWIN

In keeping with the modern trend for narrow escutcheons we present our latest Russwin creations . . .

ANTONY
NILE . . .
JUNO . .

Furnished in wrought brass, bronze or steel with metal or new type glass knobs.

RUSSELL & ERWIN MFG. CO.
THE AMERICAN HARDWARE CORPORATION SUCCESSORS
NEW BRITAIN, CONN.
NEW YORK CHICAGO LONDON

Plaza Developments, $1,500,000. Architects, Bennett, Parsons and Frost, Chicago. Plans in progress.

Conservatory (Botanical Gardens), $577,000. Architects, Bennett, Parsons and Frost, Chicago. Bids due May 27.

Terrace Fountain and Garage, $500,000. Architects, Bennett, Parsons and Frost, Chicago. Bids due May 28.

Senate Office Building (Alteration to Front), $189,000. Architects, Wyeth and Sullivan, Washington. General Contractors, George A. Fuller Co., Washington. Completing.

Senate Office Building (Alteration to Side), $570,000. Architects, Wyeth and Sullivan, Washington. Bids in.

Senate Office Building (Addition), $2,500,000. Architects, Wyeth and Sullivan, Washington. Plans in progress.

Under Public Roads, Department of Agriculture:

Memorial Highway, $6,500,000. Engineer, P. J. Wilson, Washington. Work under way.

Laboratory Building, $250,000. Architect, private plans. Plans in progress.

Under Bureau of Standards, Department of Commerce:

Hydraulic Laboratory, $350,000. Architect, W. I. Deming, Washington. General Contractors, Stofflet and Tillotson, Philadelphia. Work starting.

Under National Museum:

National Museum Building, $6,500,000. Architect, not announced.

Under Bureau of Yards and Docks, Navy Department:

Naval Hospital Center, $3,200,000. Architects, Allied Architects, Washington. Plans in progress.

Offices, Barracks and Mess Hall, $275,000. Private plans. Plans completed.

Central Heating Plant, $25,000. Engineer, private plans. Plans completed.

Under Supervision of Col. U. S. Grant, 3rd, Public Buildings and Public Parks:

Red Cross Office Building, $693,480. Architects, Trowbridge and Livingston, New York City. General Contractors, McCloskey and Co., Philadelphia. Work under way.

Warehouse, $1,750,000. Engineers, Lockwood Green Engineers, Inc., New York City. Plans near completion.

Central Heating Plant and Building, $750,000. Architect and Engineer, private plans. Plans in progress.

Industrial Shop and Cottage, $200,000. Architect and Engineer, private plans. Bids due May 29. Plans in progress.

Park Development, $2,000,000. Architect and Engineer, private plans. Plans in progress. Work under way.

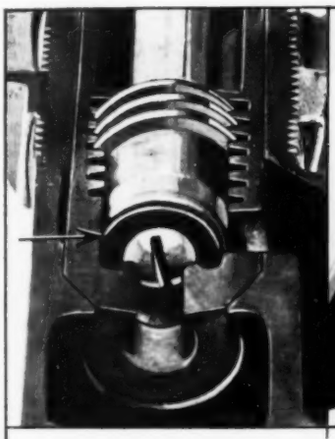
Arlington Memorial Bridge, $14,500,000. Architects, McKim, Mead and White, New York City. General Contractors, several. 80 per cent completed.

Under National Capitol Public Park and Planning Commission:

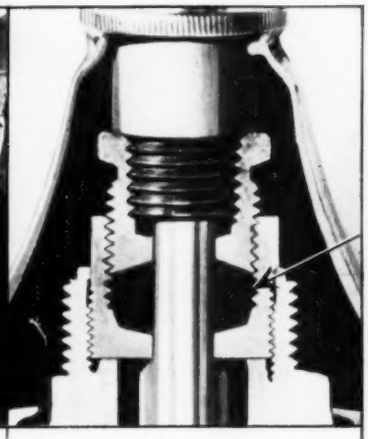
Parks, Etc., $4,000,000. Architect and Engineer, private plans. Plans in progress.

INSIDE FACTS ABOUT FITTINGS

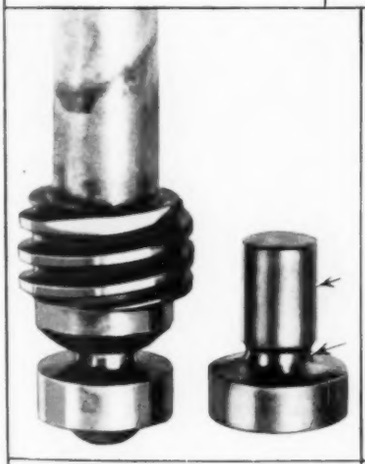
THAT MAKE AN ARCHITECT'S WORK SIMPLER, SURER



Encased disc washers make a water-tight joint. The washers are made of a hard, non-swelling composition.



Only the best and most serviceable packing available is used in Kohler valves. One of many details that make efficiency.



The swivel disc on Kohler valves has a long shank extending ½" into the heavy stem, which means quiet action.

Interchangeable handles on Kohler fittings are splined to eliminate troublesome top or side screws.

YOUR association with the client isn't over, by a good deal, when the last fixture and fitting have been put in. Trouble-shooting wastes time, wastes money, does no good to reputations. The best way and the safe way is to find out for yourself which fittings are right, and *stay* right, and then use them in writing your plans.

Here are some of the reasons why so many architects are sticklers about Kohler fittings on all jobs, large and small. First, Kohler fittings are made of real red brass, containing an extra amount of virgin copper. Pick up a Kohler spout or faucet. Notice its weight. Extra metal, plus hair-breadth accuracy in manufacture, means deep threads that are always in mesh, water-tight joints, cleaner castings, and a smoother surface.

You may have discovered, too, how much the clear, smooth finish of Kohler fittings, their character and style, do to keep clients satisfied. Kohler chromium on all cast brass pieces is applied directly to the metal itself. No undercoating of nickel or copper causes the chromium to peel. The plating is thicker, more uniform—more durable, and easy to clean.

Another thing to notice about Kohler fittings is the lack of gadgets and useless ornament. . . . Handles turn quickly, easily, at the touch of the fingers. Spouts swing from the top of the yokes. Kohler Co. *Founded* 1873. Kohler, Wis. Manufacturers of Kohler Electric Lighting Plants. ***Branches in principal cities.***

The beauty of Kohler fittings is typified by the graceful handles and the forceful, flowing lines of the escutcheons.

KOHLER OF KOHLER

PLUMBING FIXTURES AND FITTINGS

Under Quartermaster General's Office:

Medical School (Addition), $840,000. Walter Reed Hospital. Architect and Engineer, private plans. General Contractor, H. R. Blagg, Dayton. Work under way.

Warehouse, Laundry and Bakery, $181,000. Walter Reed Hospital. Architect and Engineer, private plans.

Development, Aviation Center, $1,000,000. Bolling Field, D. C. Architect and Engineer, private plans. Plans in progress.

Under Department of the Interior:

Hospital (Tuberculosis), St. Elizabeth, $190,000. Architect and Engineer, Veterans' Bureau. Bids in.

Continuous Treatment Building, $825,000. St. Elizabeth's Hospital. Architect and Engineer, Veterans' Bureau. Plans in progress.

Receiving Ward, $1,050,000. St. Elizabeth's Hospital. Architect and Engineer, Veterans' Bureau. Plans in progress.

Three Women's Dormitories, $694,000. Howard University. Architect, Albert I. Cassell, Washington. General Contractors, Maiatico Construction Co., Washington. Work under way.

Chemical Building, $390,000. Howard University. Architect, Albert I. Cassell, Washington. Plans completed.

College Building, $460,000. Howard University. Architect, Albert I. Cassell, Washington. Plans in progress.

Library, $800,000. Howard University. Architect, Albert I. Cassell, Washington. Plans in progress.

Underground Tunnel (Transmission), $225,000. Howard University. Architect and Engineer, Albert I. Cassell, Washington. Plans in progress.

Maternity Ward, $130,000. Freedmans Hospital. Architect, James B. Berrall, Washington. General Contractors, Bahen and Wright, Washington. Completing.

Clinic Building, $97,000. Freedmans Hospital. Architect, James B. Berrall, Washington. Plans in progress.

Under Commissioners, District of Columbia, Semi-Government:

Municipal Center Buildings, $25,000,000. Architect (Municipal), A. L. Harris, Washington. Plans in progress.

Electric Power Plant, $3,000,000. Engineer making survey.

Two Incinerator Plans and Buildings, $800,000. Bids in.

Three Highway Bridges, $650,000. Work under way.

Twenty-one Buildings, Schools, Homes, Nurses' Quarters, etc., $4,000,000. Plans in progress. Work under way.

A CORRECTION

The 124th Field Artillery Armory at Chicago, illustrated in the June issue, was credited to C. Herrick Hammond, architect. Perkins, Chatten and Hammond, architects, were associated with Mr. Hammond.